



**Ontario Geological Survey
Open File Report 6112**

**Report of Activities, 2002
Resident Geologist Program**

**Thunder Bay South Regional
Resident Geologist Report:
Thunder Bay South District**

2003



ONTARIO GEOLOGICAL SURVEY

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Thunder Bay South District

by

B.R. Schnieders, J.F. Scott, M.C. Smyk and M.S. O'Brien

2003

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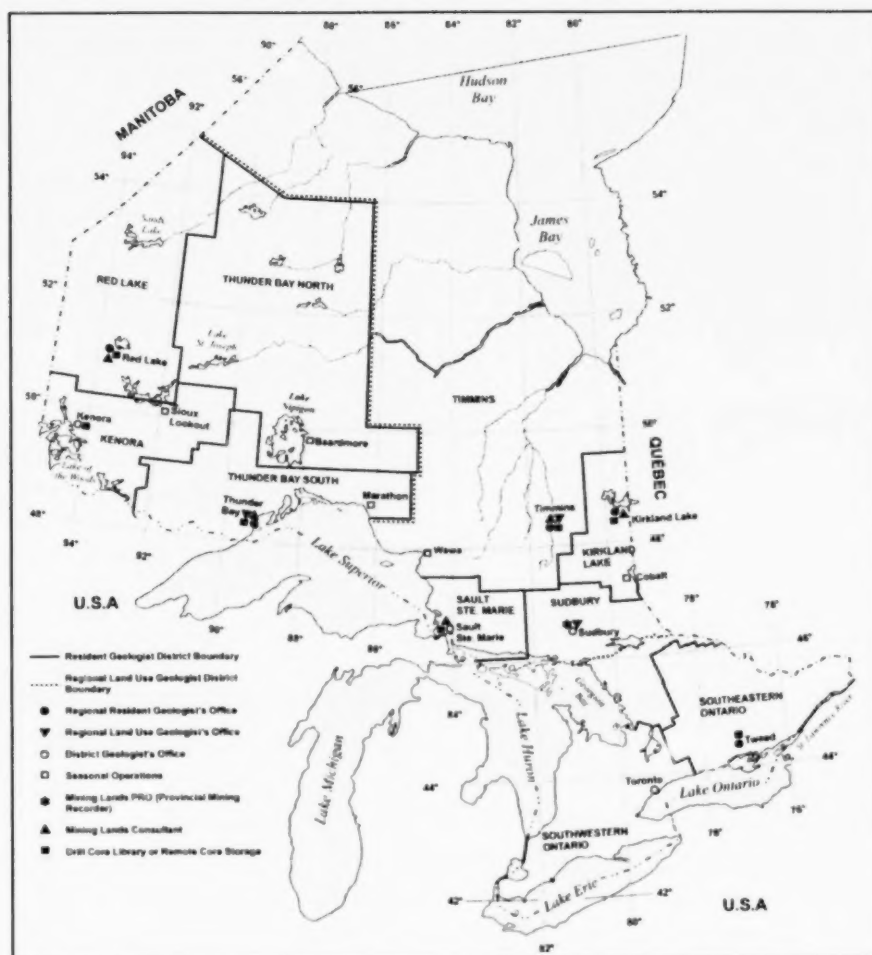
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**Ontario Geological Survey
Regional Resident Geologist Program**

**Thunder Bay South Regional Resident Geologist
(Thunder Bay South District)–2002**

by

B.R. Schnieders, J.F. Scott, M.C. Smyk and M.S. O'Brien

2003

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Thunder Bay South Regional Resident Geologist (Thunder Bay South District)–2002

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INTRODUCTION

The Thunder Bay South District covers an area from Calm Lake, west of Atikokan, east to White River, and north to Armstrong from the U.S. border. The District Program is based in Thunder Bay, but also maintains a seasonal field office in Marathon.

The authors note that for purposes of efficacy, the name of the reporting company has been omitted when referencing news releases, unless more than one company has been mentioned in the preceding text.

MINING ACTIVITY

There were four producing, precious and base metal mines, as well as a marble quarry, several amethyst producers and an agate mine in the Thunder Bay South District in 2002. Mine production and reserves are listed in Table 1.

Table 1. Mine production and reserves in the Thunder Bay South District in 2002.

Mine	Production to end of 2001		Production in 2002		Reserves at end of 2002	
	Tonnage @ Grade	Total Commodity	Tonnage @ Grade	Total Commodity	Tonnage	Grade
David Bell Mine	7 093 360 t @ 14.54 g/t Au	3 134 436 ounces gold	429 699 t @ 10.17 g/t Au	140 593 ounces gold	2 747 106 t	10.11 g/t Au
Golden Giant Mine	16 586 828 t @ 11.82 g/t gold	5 934 795 ounces gold	997 556 t @ 8.73 g/t Au	267 536 ounces gold	N/A	N/A
Lac des Iles Mine	7 950 551 t	629 272 ounces palladium, 44 086 ounces platinum, 42 073 ounces gold 11 139 163 pounds copper, 7 765 345 pounds nickel	4 851 621 t @ 1.91 g/t Pd	219 325 ounces palladium, 19 180 ounces platinum, 16 030 ounces gold, 5 295 486 pounds copper, 2 763 654 pounds nickel	N/A	N/A
Williams Mine	35 015 404 t @ 6.38 g/t Au	6 844 815 ounces gold	3 028 000 t @ 4.39 g/t Au	427 600 ounces gold	32 500 000 t	3.13 g/t Au

N/A = production figures not available at time of writing

Agate

THUNDER BAY AGATE MINE

The Thunder Bay Agate Mine opened in July, 1997, and is located in MacGregor Township, on the west side of Highway 527 (Spruce River Road), 1 km north of the intersection with Highway 11-17. It is estimated that up to 30 000 people visited the site in 2002 (D. Seargeant, Thunder Bay Agate Mine, personal communication, 2002).

Agate occurs as a conformable layer or vein hosted by flat-lying, Animikie sedimentary rocks, in contact with a Keweenaw diabase sill. The agate layer varies up to 1 m in width and has been traced by stripping over a 1 km strike length. The banded and variegated agate has been previously referred to as fortification agate and Current River agate, and varies in colour (e.g. colourless, white, grey, black, yellow, orange, blue, beige, buff and red). The agate likely formed in an open-space environment, as evidenced by stalactitic textures and concentrically zoned orbicules (Thunder Bay Agate Mine, World Wide Website, <http://www.agatemine.com>).

Amethyst

Two areas northeast of Thunder Bay are well-known locations for amethyst veins and production. In the area along the Magone Lake Road, north of MacGregor Township (accessible via Highway 527), five sites see periodic, small-scale extraction of amethyst. In McTavish Township, eight deposits are accessible from Highway 11-17, four of which operate as seasonal tourist attractions. The Blueberry Amethyst Patch also operates as a seasonal tourist attraction, southwest of Kakabeka Falls. Local deposits and mines are listed below:

<u>Deposit / Mine</u>	<u>Location</u>	<u>Owner(s)</u>
Amethyst Mine Panorama	McTavish Township	S. and T. Lukinuk
Ancliff Station Amethyst Quarry	McTavish Township	C. Anderson
Bak Quarry	McTavish Township	D. Bak
Blueberry Amethyst Patch	Marks Township	J. Hakala and S. Bellettini
Blue Points Amethyst Mine	McTavish Township	L. Swanson
Boulder Creek Amethyst	North of MacGregor Township	C. Anderson
Breezy Mountain Amethyst Mine	McTavish Township	T. Twomey
Crystal Creek Amethyst Mine	North of MacGregor Township	R. Hietapakka
DanBill Amethyst Mines	McTavish Township and North of MacGregor Township	B. Richardson and D. Arsenault
Diamond Willow Amethyst Mine	McTavish Township	D. Noyes
Gem Mountain Amethyst Mine	North of MacGregor Township	O. and R. Harty
Keetch Amethyst Quarry	McTavish Township	N. Keetch
Ontario Gem Amethyst Mine	McTavish Township	P. Marino
Purple Haze Mine	North of MacGregor Township	M. and S. Grieve
Thibault Amethyst Quarry	North of MacGregor Township	D. Thibault

Stone

RUBY LAKE MARBLE LTD.

The Ruby Lake Marble Ltd. quarry, located approximately 10 km southeast of Nipigon, is owned and operated by D. MacAlpine. Variegated, multi-coloured, banded marble was quarried for landscaping stone. Production and shipping of marble was severely curtailed in 2002 due to reduced demand, particularly in the United States following the events of September 11, 2001 (D. MacAlpine, Ruby Lake Marble Ltd., personal communication, 2002). The stone has previously been shipped to southern Ontario, Alberta, Saskatchewan, Manitoba, Michigan, Wisconsin, Minnesota and Pennsylvania (*ibid*). Some red siltstone from an adjacent site has also been shipped. There was some test splitting of 8- to 10-inch garden wall blocks. Additional information is provided on the company's World Wide Website (<http://www.rubylakemarble.com>).

This marble consists of metamorphosed, Mesoproterozoic, Rossport Formation (Sibley Group) dolostone and other, calcareous sedimentary rocks in the contact metamorphic aureole of Keweenawan diabase sills. It has previously been termed Nipigon River marble and was quarried from 1883 to ca. 1910 at a site on the eastern side of the Nipigon River, approximately 6 km west of the Ruby Lake quarry (Hinz *et al.* 1994).

Gold

The three Hemlo mines (David Bell, Golden Giant and Williams mines) continue to produce gold from the Hemlo deposit.

DAVID BELL MINE (TECK-CORONA OPERATING CORPORATION)

Production from the David Bell Mine (Teck Cominco Limited (50%) / Barrick Gold Corporation (50%)) from January 1, 2002 to December 31, 2002 consisted of 140 593 ounces of gold from 429 699 t milled at a feed grade of 10.17 g/t Au (T. Madill, Teck-Corona Operating Corporation, personal communication, 2003).

As of January 1, 2003, Proven and Probable Reserves from the 'A', 'C' and 'D' zones totalled 2 747 106 t at a grade of 10.11 g/t Au, containing 893 219 ounces of gold. (*ibid*).

GOLDEN GIANT MINE (NEWMONT CANADA LIMITED)

Production from the Golden Giant Mine in 2002 totalled 997 556 t milled at an average grade of 8.73 g/t Au (279 996 contained ounces of gold) and a recovery rate of 95.55% (H. Lockwood, Newmont Canada Limited, personal communication, 2003). Reserve figures were not available at the time of publication.

By the end of March, 2003, the last remaining mining block (Block 5) in the Lower ore zone will be developed with closely spaced (15 m) sub-levels. When production begins from Block 5 in the second quarter of 2003, the Golden Giant orebody will be fully defined and all major blocks will have been developed for mining (*ibid*).

WILLIAMS MINE (WILLIAMS OPERATING CORPORATION)

Production from the Williams Mine (Teck Cominco Limited (50%) / Barrick Gold Corporation (50%)) in 2002 totalled 3 028 000 t milled at an average grade of 4.39 g/t Au (427 000 contained ounces of gold) (G. Strecky, Williams Mine, personal communication, 2003).

As of January 1, 2003, underground and open-pit reserves for the Williams Mine totalled 32.5 M t at a grade of 3.13 g/t Au (3 274 000 total contained ounces gold) (*ibid*).

Following reduced production in the first half of the year as a result of ground control problems, gold production at the Williams mine improved in August and September. The Williams and David Bell mines are continuing to

monitor and address the geotechnical conditions and implement new mining procedures. The approved paste-backfill system, which will improve underground mining efficiency and help stabilize ground conditions, is expected to be installed in the second quarter of 2003 (News Release, October 23, 2002).

The Williams Mine is planning a proposed expansion of their open-pit operations, which would make the mine economically viable for the next 12 years (*Chronicle Journal*, November 7, 2002).

Platinum Group Elements

LAC DES ILES MINE (LAC DES ILES MINES LTD.)

North American Palladium Ltd. produced palladium, platinum, nickel, copper, cobalt and gold from its Lac des Iles Mine, 100 km north of Thunder Bay. In 2002, the mill processed 4 851 621 tonnes of ore or 13 292 tonnes per day with a head grade of 1.91 g/t Pd, producing 219 325 ounces of palladium at a recovery rate of 73.8%. Other metal production in 2002 included 19 180 ounces of platinum, 16 030 ounces of gold, 5 295 486 pounds of copper and 2 763 654 pounds of nickel. The final 2002 production totals are subject to final assay adjustments with the smelters (News Release, January 14, 2003). Reserve figures were unavailable at the time of writing.

Palladium production increased slightly in the fourth quarter compared to the third quarter. However, production in the quarter was affected by the temporary shutdown of the primary crusher at the mine. The shutdown impacted both mill throughput and feed grade. For the quarter, mill feed was supplied by contract crushers from a combination of the existing medium grade ore stockpile and high grade run-of-mine ore. In 2002, a pilot plant program demonstrated that current palladium recoveries could be improved with the introduction of finer ore in the mill circuit. The company is currently utilizing its existing tower mills to test the impact of a finer ore grind in an effort to replicate the pilot plant results. The company expects to complete this testing program in the first quarter of 2003 (*ibid*).

EXPLORATION ACTIVITY

Mining Lands

As of December 31, 2002, there were 7378 active claims, totalling 43 593 claim units, in the Thunder Bay Mining Division (comprising both the Thunder Bay South and Thunder Bay North districts.) 1001 claims, totalling 10 175 claim units, were recorded in the Division in 2002.

179 assessment files, representing \$8 254 550 in exploration expenditures, were reported for the Thunder Bay South District in 2002 (see Table 2). Exploration activity for the district is listed in Table 3 (keyed to Figures 1 and 2) and highlights are detailed below.

Nickel-Copper-Platinum Group Element Exploration

North American Palladium Limited completed an 82-hole, 47 160 m program of definition diamond drilling on the Main High Grade Zone during the third quarter of 2002. The drilling program was designed to increase the level of confidence in the Main High Grade Zone resource which will be used to evaluate the potential of undertaking an underground mining operation (News Release, November 14, 2002). The average true width of the Main High Grade Zone is 11.8 m, with a grade of 6.1 g/t Pd (News Release, February 04, 2003).

An independent geoscience consulting firm completed simulations of a variety of geophysical techniques in an effort to evaluate their effectiveness at extrapolating Lac des Iles minesite geology and mineralization to depths greater than 1 km, and at generating drill targets at even greater depths. As a result, plans to conduct a deep-penetrating magnetotellurics survey during the late winter (early 2003) are underway. This survey will be capable of accurately detecting PGE-Ni-Cu-bearing, massive sulphide bodies to a depth of 2 km. The discovery of numerous pods of remobilized massive sulphide, several metres in size, at surface and during past drilling has generated the impetus to

search for their deep source (*ibid*). North American Palladium is initiating several new grass roots exploration projects as a result of acquiring new properties in northwestern Ontario.

Platinum Group Metals Limited, through a joint-venture agreement with **Wheaton River Minerals Ltd.**, drilled the Stinger Zone in the Towle Lake intrusion, 15 km south of the Lac des Iles Mine (News Release, August 6, 2002). PGE-mineralized rocks had previously been found in the intrusion 6.5 km to the southwest at the Powder Hill occurrence, and 3.6 km to the northeast at the Vande occurrence. However, these mineralized zones intersected in previous drill programs are thought to be at different horizons within the Towle Lake intrusion. In total, 1290 m of diamond drilling and 150 m of trenching have been completed on two properties within PTM's 270 km² Lac des Iles property (*ibid*).

Initial drill testing of the Stinger Zone had returned 4.92 g/t Au+Pt+Pd over 3.1 m within a layered series of pyroxenite and hornblende leucogabbro, with highly elevated PGE values over widths of up to 25 m. Results from the 2002 drilling program include 19.00 m grading 1.06 g/t Au+Pt+Pd in hole ST02-04. Detailed results from the six holes in the Stinger Zone are listed below:

Hole No	East	North	From (m)	To (m)	Intercept (m)	Au (ppb)	Pt (ppb)	Pd (ppb)	Au+Pt+Pd (g/t)	Pd/Pt (ratio)
ST02-01	25E	15N	41.8	66.9	25.1	13	33	98	0.14	2.97
ST02-02	25W	15N	60.9	63.8	2.9	28	54	331	0.41	6.13
ST02-03	11W	44S	** Lost in Fault Above Zone							
ST02-04	100E	15N	49.7	68.9	19.2	71	157	827	1.06	5.27
		*including			2.6				3.47	
ST02-05	100W	15N	56.3	62.8	6.5	68	176	1033	1.28	5.87
		*including			1.3				5.48	
ST02-06	6E	30S	125.3	138.95	13.65	22	238	1219	1.48	5.12
		*including			3.1				4.92	
		which includes			1.1				6.71	

Drill holes ST02-04 and ST02-05 were drilled 75 m east and 70 m west, respectively, of the discovery trench on the Stinger Zone which returned channel samples including 2.02 g/t Au+Pt+Pd over 4.60 m and grab samples grading 7.97 g/t Au+Pt+Pd from sampling in the fall of 2001 (*ibid*).

Platinum Group Metals Limited is earning a 60% interest in the Shelby Lake property from **New Claymore Resources Ltd.** and a 60% interest in the Lac des Iles River property from **East West Resource Corporation** and **Maple Minerals Limited**. The Stinger Zone is located on the Shelby Lake Property and the PGE mineralized target horizons within the Towle Lake intrusion extends on to the Lac des Iles River Property (*ibid*). PTM also began drilling in late 2002 on a newly discovered mafic intrusion on the Thread and Pebble properties to the northeast, following prospecting in 2002 (News Release, December 02, 2002).

East West Resource Corporation undertook an extensive program covering 11 separate projects in the Nipigon Basin, in search for Noril'sk type Cu-Ni-PGE deposits. All of this work, with the exception of Seagull-Disraeli (joint-ventured with **Avalon Ventures Ltd.** and **Canadian Golden Dragon Resources Ltd.**) has been funded by joint-venture partners Teck Cominco Limited and Jubilee Platinum PLC. Drilling has been done on 6 of the 11 projects. Teck Cominco will conduct future work on the Ferguson Lake area which is part of the regional joint-venture, but is returning the Stop, Hele, Little Sturge, Spruce River and Mikinak properties. Untested electromagnetic (EM) conductors and magnetic anomalies on these properties will be followed up by the company, possibly with other joint-venture partners (News Release, January 6, 2003).

Table 2. Assessment files received in Thunder Bay South in 2002.

Abbreviations	
AEM	Airborne electromagnetic survey
AM	Airborne magnetic survey
ARA	Airborne radiometric survey
Beep	Beep Mat survey
Bulk	Bulk sampling
DD	Diamond drilling
DDH	Diamond drill hole(s)
DGP	Down-hole geophysics
GC	Geochemical survey
GEM	Ground electromagnetic survey
GL	Geological Survey
GM	Ground magnetic survey
GRA	Ground radiometric survey
Grav	Gravity survey
HLEM	Horizontal loop electromagnetic survey
HM	Heavy mineral sampling
IM	Industrial mineral testing and marketing
IP	Induced polarization survey
Lc	Linecutting
Met	Metallurgical testing
OD	Overburden drilling
ODH	Overburden drill hole(s)
PEM	Pulse electromagnetic survey
PGM	Platinum group metals
Pr	Prospecting
RES	Resistivity survey
Samp	Sampling (other than bulk)
Seismic	Seismic survey
SP	Self-potential survey
Str	Stripping
Tr	Trenching
UG	Underground exploration/development
VLEM	Vertical loop electromagnetic survey
VLFEM	Very low frequency electromagnetic survey

Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Amethyst Bay	Bakovic, D.	2001	Str	2.23667	52A10/SW-025
Armstice Lake	Lac des Iles Mines Ltd.	2002	GL, Samp	2.23721	52H05/SW-018
Badger Lake	Gitennes Exploration Inc.	2002	GC, GL, Samp	2.24000	52H05/NE-001, 52H06/NW-011, 52H11/SW-008, 52H12/SE-005
Badger Lake	Gitennes Exploration Inc.	2002	GM, VLFEM, Lc	2.24085	52H05/NE-002
Barehead Lake	Southern Era Ltd.	2002	GM, Pr, Lc, Samp	2.24127	42F04/SW-009a,b, 42F03SW-005, 42F04/SE-023
Bedivere Lake	Denstone Ventures Ltd.	2001	GM, Lc	2.21897	52B15/SW-024, 52B14/SE-037
Bedivere Lake	Intrepid Minerals Corp.	2001	GL, Samp	2.23460	52B15/SW-025
Bigrock Lake	Gryphon Metals Corp.	2000	AEM, AM	2.21464	42F03/SW-004, 42F04/SE-016, 42C14/NW-012, 42C13/NE-009
Boot Bay	Pinksen, J.	1999	Pr, Samp	OP99-473, OP99-472	52B15/SE-017
Burchell Lake	Holbik, E.	2001	Str	2.23473	52B10/SE-154
Burchell Lake	Moss Lake Gold Mines Ltd.	2001	GL, Samp	2.22747	52B10/SE-152
Burchell Lake	Moss Lake Gold Mines Ltd.	2002	IP	2.23132	52B10/SE-153
Burchell Lake	Moss Lake Gold Mines Ltd.	2002	DDH, Samp	2.24152	52B10/SE-155a,b

Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Candide Lake	Sutton, G., Barrow, S., Benninghaus, E., Luoma, T.	2002	Pr	2.24587	52H11/NW-002
Cheeseman Lake	Canplats Resources Corp.	2001	IP	2.21630	52H06/NW-008, 52H11/SW-005
Cheeseman Lake	Canplats Resources Corp.	2001	GC, GL, DDH, Samp	2.22847	52H06/NW-009, 52H11/SW-007
Circle Lake	East West Resource Corp.	2001	GL, GM, IP, Lc, Samp	2.22609	52H06/SE-005
Circle Lake	East West Resource Corp.	2001	GL, Samp	2.22161	52H06/SE-006, 52H03/NE-009
Cirrus Lake	Moses, P.	1999	Pr, Tr, Samp	OP99-370	42D16/NE-030, 42D16/NE-045
Conmee and Oliver townships	Candor Ventures Corp.	2001	GEM, GM, Lc	2.23705	52A05/NW-056
Conmee and Oliver townships	Candor Ventures Corp.	2002	DDH, Samp	2.23389	52A05/NW-055
Conmee and Oliver townships	Cassidy Gold Resources Inc.	2000	GL, Pr	2.20941	52A05/NW-046
Conmee and Oliver townships	Chataway, R.	2000	GEM, Pr, Str, Samp	2.21062	52A05/NW-048
Conmee and Oliver townships	Chataway, R.	2000	GC, Pr, VLEM, VLFEM, Samp	OP99-446	52A05/NW-050
Conmee and Oliver townships	Middaugh, R.	2000	GM, VLFEM, Lc, Samp	2.22259	52A05/NW-049
Conmee and Oliver townships	Probe Mines Ltd.	2002	GM, Lc	2.24559	52A05/NW-057
Conmee and Oliver townships	RJK Explorations Ltd.	2001	DD, Samp	2.22179	52A05/NW-047
Conmee and Oliver townships	RJK Explorations Ltd.	2001	Tr	2.22830	52A05/NW-051
Conmee and Oliver townships	RJK Explorations Ltd.	2001	DDH, Samp	2.22827	52A05/NW-052
Conmee and Oliver townships	RJK Explorations Ltd.	2001	GEM, GM, Lc	2.22918	52A05/NW-053
Conmee and Oliver townships	RJK Explorations Ltd.	2001	DDH, Samp	2.23135	52A05/NW-054
Crystal Lake	Falconbridge Ltd.	2001	GL, Samp	2.22426	52A04/SE-075, 52A03/SW-019
Crystal Lake	Falconbridge Ltd.	2002	AEM, AM	2.24169	52A04/SE-077, 52A03/SW-020
Crystal Lake	Falconbridge Ltd.	2002	AM, ARA, Grav	2.23664	52A04/SE-078, 52A03/SW-021
Crystal Lake	North Atlantic Corp.	2001	DDH	2.21497	52A04/SE-074
Crystal Lake	North Atlantic Corp.	2002	DDH	2.23758	52A04/SE-076a, 52A04/SE-076b
Deadhorse Creek	Morgan, J.	2001	Pr	2.21793	42D15/SE-075
Deadhorse Creek	Morgan, J.	2001	GC, Samp	2.21867	42D15/SE-076
Deadhorse Creek	Morgan, J.	2001	Pr	2.21731	42D15/SE-077
Deadhorse Creek	Morgan, J.	2001	Pr, Samp	2.21861	42D15/SE-078
Deadhorse Creek	Morgan, J.	2001	GRA	2.22221	42D15/SE-079
Deadhorse Creek	Morgan, J.	2001	GRA, Samp	2.22260	42D15/SE-080
Devon Township	Trelinski, J.	2002	Pr, Samp	2.23871	52A04/SW-002

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Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Empire Lake	Valerie Gold Resources Ltd.	2001	GM, IP, Lc	2.22560	52G09/NE-004
Finlayson Lake	Atikokan Resources Inc.	2002	GEM, GM, VLFEM, Lc	2.23883	52B13/NE-018
Finlayson Lake	Fern Elizabeth Gold Exploration Ltd.	2002	Str, Samp	2.24087	52B13/NE-019
Foch Lake	Freewest Resources Canada Inc.	2001	Pr, Samp	2.22960	42F03/NW-017
Gillard Lake	Berland Resources Ltd.	2000	GL, Pr, Samp	2.20983	52H12/NW-001
Gillard Lake	Berland Resources Ltd.	2001	GEM, GM, IP, Lc	2.22964	52H12/NW-002, 52H12/SW-018
Gravel River	Reukl, R.	2001	GM, Manual	2.24492	42E04/SE-009
Greenwater Lake	Aho, T.	2001	Pr, Samp	2.23116	52B09/SW-065
Greenwater Lake	Holbik, E.	2001	Str	2.23476	52B09/SW-066
Gutteridge Lake	Gilbert, W.	2000	Pr, Tr, Samp	2.21967	52A14/NW-005, 52A13/NE-002, 52H03/SW-012, 52H04/SE-018
Gutteridge Lake	New Millennium Metals Corp.	2001	GL, Samp	2.22400	52A14/NW-007, 52A13/NE-003, 52H03/SW-013, 52H04/SE-019
Hays Lake	Daniels, G.	2000	GL, Str	2.22038	42D14/SE-108
Hays Lake	Michano, J.	1999	GC, Pr, Samp	OP99-372	42D14/NE-109
Hays Lake	Wing, A.	1999	Pr, Samp	OP99-433	42D14/SE-110
Hazelwood Lake	Pitkanen, R.	1999	Pr, Str, Samp	OP99-463, OP99-464	52A11/SW-015
Innes Lake	Petrunka, R.	2000	GL, Samp	2.20793	52A15/SE-022
Kabamichigama Lake	Paterson, R.	2001	Str	2.23624	42E04/NE-014
Kashabowie Lake	Bumbu, C.	2001	Str, Tr, Samp	2.22629	52B09/NW-079
Kashabowie Lake	Hackl, J.	1999	Pr, Tr, Samp	OP99-461, OP99-462	52B09/NW-078
Kashabowie Lake	Hackl, J.	2001	DDH, Samp	2.21946	52B09/NW-076
Kashabowie Lake	Hackl, J.	2000	Str, Samp	2.23809	52B09/NW-081
Kashabowie Lake	LMX Resources Ltd.	2000	GEM, GM	2.21672	52B09/NW-075, 52B09/SW-064
Kashabowie Lake	North American Gem Incorporated	2002	GL, Samp	2.22862	52B09/NW-080
Kashabowie Lake	Placer Dome (CLA) Ltd.	2000	GL	2.21771	52B09/NW-001
Kashabowie Lake	Placer Dome Inc.	2000	DDH, Samp	2.21795	52B09/NW-002
Kashabowie Lake	Placer Dome Inc.	2000	GM, VLFEM, Lc	2.21779	52B09/NW-003
Kashabowie Lake	Wing, A.	1999	GL, Pr, Samp	OP99-433	52B09/NW-077
Kitchen Lake	Canplats Resources Corp.	2001	GM, VLFEM, Max-Min, IP, Lc	2.22859	52H11/SW-006
Kitchen Lake	Gitennes Exploration Inc.	2002	GC, GEM, GM, Lc	2.24230	52H11/SW-009, 52H11/NW-003
Lac des Iles	Avalon Ventures Ltd.	2002	GL, Str, Samp	2.23838	52H04/NE-035, 52H04/SE-025, 52H03/NW-025, 52H03/SW-014

Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Lac des Iles	Classic Gold Resources Ltd.	2001	DDH, Samp	2.23026	52H04/NE-034, 52H05/SE-009
Lac des Iles	Classic Gold Resources Ltd.	2001	DDH, Samp	2.23025	52G01/NW-002
Lac des Iles	Lac des Iles Mines Ltd.	2001	GM, IP, Lc	2.21631	52H04/NE-033
Leckie Lake	Avalon Ventures Ltd.	2000	IP	2.21551	52H02/SW-013, 52H03/SE-008, 52A15/NW-007, 52A14/NE-002
Leckie Lake	Avalon Ventures Ltd.	2000	IP	2.22323	52H02/SW-014
Leckie Lake	Avalon Ventures Ltd.	2001	PEM, DDH, Samp	2.22499	52H02/SW-015
Leckie Lake	Avalon Ventures Ltd.	2002	HLEM, Lc	2.23537	52H02/SW-018
Leckie Lake	Avalon Ventures Ltd.	2002	AM	2.23700	52H02/SW-021, 52A15/NW-009, 52H03/SE-009, 52A14/NE-004
Leckie Lake	Avalon Ventures Ltd.	2002	GC, GL, Petrographic Study, Samp	2.24058	52H02/SW-023, 52H03/SE-010, 52A15/NW-010, 52A14/NE-005
Leckie Lake	East West Resource Corp.	2002	AEM, AM	2.23129	52H02/SW-016, 52H02/NW-008, 52A15/NW-008
Little Santoy Lake	Michano, D.	1999	Pr, Str, Tr, Samp	OP99-371	42D15/SW-091, 42D16/SE-046
Little Santoy Lake	Michano, D.	2002	Pr, Str, Samp	2.23842	42D15/SW-093
Little Santoy Lake	RJK Explorations Ltd.	2002	DDH, Samp	2.23380	42D15/SW-092
Little Sturge Lake	Avalon Ventures Ltd.	2002	AM	2.23486	52H02/NW-011, 52H02/SW-019
Little Sturge Lake	East West Resource Corp.	2001	AEM, AM	2.23481	52H02/NW-010, 52H07/SW-007
Little Sturge Lake	East West Resource Corp.	2002	AEM, AM, GEM	2.23500	52H02/NW-012, 52H02/SW-020
Little Sturge Lake	Lac des Iles Mines Ltd.	2001	GM, Lc	2.23316	52H02/NW-009, 52H02/SW-017
Loch Lomond Lake	Chaschuk, M.	2001	DDH, Samp	2.22033	52A03/NW-012
Loken Lake	Freewest Resources Canada Inc.	2001	GM, VLFEM, Lc	2.22926	42F04/NE-065
Loken Lake	Freewest Resources Canada Inc.	2001	GL, Pr, Tr, Samp	2.23157	42F04/NE-066, 42F04/SE-022
Loken Lake	Gionet, R.	2001	Str	2.22626	42F04/NE-063
Lorna Lake	Bond, J. et al.	2001	Pr, Samp	2.23663	42D16/SE-047, 42D16/NE-031, 42D16/NW-025
Lorna Lake	Bond, J. et al.	2002	GL, Samp	2.23718	42D16/SE-048
Lorna Lake	Teck Cominco Ltd.	2000	GM, VLFEM, IP	2.22557	42D16/SE-044, 42D16/NE-029

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Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Lunch Creek	Canplats Resources Corp.	2001	GC, GL, DDH, Samp	2.22845	52H06/NE-006, 52H06/NW-010, 52H06/SE-007, 52H06/SW-027
Marathon	Gold Summit Mines Ltd.	2001	GC, GL, GM, Lc, Samp	2.22860	42D09/NW-121, 42D16/SW-116
Marathon	Homestake Canada Inc.	2000	DDH, Samp	2.22076	42D09/NW-120
Marathon	Homestake Canada Inc.	2000	DDH, Samp	2.23017	42D09/NW-122
Marathon	North American Palladium Ltd.	2002	GL, Samp	2.24237	42D09/NW-124
Marathon	Teck Cominco Ltd.	2000	GL, DDH, Samp	2.23258	42D09/NW-123
Max Lake	Fenwick, K.	1999	Pr, Str, Samp	OP99-477	52H03/NW-023
Max Lake	Stenlund, R.	2001	Str, Tr, Samp	2.22442	52H03/NW-024
McAlpine Lake	Canplats Resources Corp.	2001	GM, Lc	2.22958	52B12/NE-008, 52B11/NW-016
McGraw Lake	Culhane, K.	2001	Pr, Tr	2.22638	42F04/SE-021
McGraw Lake	Gionet, G.	2000	Tr	2.21822	42F04/SE-017
McGraw Lake	Gionet, G.	2001	Tr	2.22677	42F04/SE-019
McGraw Lake	Gionet, J.	2001	Str, Tr	2.23018	42F04/SE-020
McGraw Lake	Gionet, R.	2001	Tr	2.22675	42F04/SE-108, 42F04/NE-064
McQuat Lake	East West Resource Corp.	2001	GM, IP, Lc	2.22321	52B12/NW-008
Mercutio Lake	Gagne, P.	2000	Str, Tr, Samp	2.20942	52B14/SE-036
Mercutio Lake	Hay, G.	2000	Pr	2.21381	52B14/SE-038
Mercutio Lake	Morehouse, W.	2001	DDH	2.22256	52B14/SE-039
Mercutio Lake	Morehouse, W.	2002	DDH	2.24264	52B14/SE-040
Metcalfe Lake	NWT Copper Mines Ltd.	2001	GL, Str, Samp	2.22749	42L04/NE-105
Mikinak Lake	Canplats Resources Corp.	2001	GM, HLEM	2.22909	52H07/SW-006
Mikinak Lake	Canplats Resources Corp.	2001	GC, GL, Samp	2.22915	52H07/SW-009
Mikinak Lake	Canplats Resources Corp.	2002	HLEM, Lc	2.23517	52H07/SW-008
Mikinak Lake	Canplats Resources Corp.	2002	AEM, AM	2.23503	52H07/SW-011
Mikinak Lake	East West Resource Corp.	2001	AEM	2.23682	52H07/SW-010
Mikinak Lake	East West Resource Corp.	2002	GEM, Lc	2.23504	52H07/SW-013a,b 52H02/SW-022, 52H02/NW-013a,b
Mikinak Lake	Fenwick, K.	1999	Pr, Samp	OP99-477	52H07/SW-005
Mikinak Lake	McVicar Minerals Ltd.	2001	PEM	2.23775	52H07/SW-012
Miranda Lake	Bjorkman, K.	1999	GM, VLFEM, Pr, Tr, Lc, Samp	OP99-466, OP99-465	52B13/SW-026
Muise Lake	Classic Gold Resources Ltd.	2001	GM, Lc	2.22504	52G01/NW-001, 52G01/NE-007
Nolalu	Stone, T.	2002	Str, Tr	2.23686	52A05/SW-021

Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Norway Lake	Atikokan Resources Inc.	2001	GEM, GM, VLFEM, Lc	2.22484	52G03/SW-046
Norway Lake	Atikokan Resources Inc.	2002	GEM, Lc	2.23507	52G03/SW-048, 52G03/SE-038
Norway Lake	Atikokan Resources Inc.	2002	GL, DDH, Samp	2.23696	52G03/SW-049, 52G03/SE-040
Norway Lake	Saunders, D.	2002	GM, VLFEM, Lc	2.23436	52G03/SW-047
Olga Lake	Freewest Resources Canada Inc.	2000	AEM, AM	2.21459	42C13/NE-010
Olga Lake	Freewest Resources Inc.	2000	GL, Pr, Str, Samp	2.21034	42C13/NE-011
Olga Lake	Freewest Resources Inc.	2000	IP, Lc	2.21035	42C13/NE-012
Olga Lake	Mealey, L.	1999	Pr	OP99-457	42C13/NE-013
Orbit Lake	Lac des Iles Mines Ltd.	2001	GL, Samp	2.22277	52A13/NW-017, 52H04/SW-011
Orbit Lake	Lac des Iles Mines Ltd.	2002	DDH, Samp	2.22990	52A13/NW-018
Penassen Lakes	Pitkanen, R.	2002	Str, Samp	2.24226	52A11/SE-028
Pickerel Lake North	Band-Ore Resources Ltd.	1999	IP, Pr, DD, Samp	2.23209	52B11/NW-017
Pickerel Lake North	East West Resource Corp.	2001	GM, IP, Lc	2.22322	52B11/NW-015
Powell Lake	Kukkee, E.	2001	Pr, Samp	2.22777	52B07/NW-058
Puddy Lake	Convey, G.	2002	Pr, Samp	2.23636	52H13/NE-023
Puddy Lake	Gryphon Metals Corp.	2000	Samp	2.20957	52H13/NE-023
Puddy Lake	New Millennium Metals Corp.	2001	GL, Samp	2.24114	52H13/NE-024
Red Rock	East West Resource Corp.	2001	GC, GL, Samp	2.22612	52A16/NW-003, 52A15/NE-007
Red Rock	East West Resource Corp.	2001	AM	2.22613	52A16/NW-004, 52A15/NE-008
Red Rock	East West Resource Corp.	2002	GEM, Lc	2.23505	52A16/NW-005, 52A15/NE-009
Richardson Lake	Atikokan Resources Inc.	2001	GEM, GM	2.22588	52G03/SE-036
Richardson Lake	Atikokan Resources Inc.	2001	Str	2.22610	52G03/SE-037
Richardson Lake	Atikokan Resources Inc.	2001	GL	2.22783	52G03/SE-039
Richardson Lake	Atikokan Resources Inc.	2002	GEM, GM	2.23854	52G03/SE-041
Rightangle Lake	Canplats Resources Corp.	2001	GL, GM, Max-Min, HLEM, IP, Lc	2.22608	52H03/NE-007
Rightangle Lake	Canplats Resources Corp.	2001	GC, Samp	2.23387	52H03/NE-010
Rope Lake	Noranda Inc.	2002	Samp	2.24021	42E03/SW-048
Rous Lake	Homestake Canada Inc.	2000	DDH, Samp	2.22383	42D09/NE-119
Sabawi Lake	Twomey, T.	2000	GC, GL, Samp	OP99-335	52B14/SW-068
Saganagons Lake	Whalen Resources Ltd.	2001	GL	2.22720	52B07/SW-028

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Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Santoy Lake	Cameco Corp.	2001	Samp	2.22520	42D15/NW-037, 42D15/SW-090
Sawbill Bay	Sande, D.	1999	Pr, Str, Samp	2.22056	52B14/NW-032
Sawbill Bay	Sande, D.	2000	Str, Samp	2.22034	52B14/NW-031
Sawbill Bay	Sande, D.	2002	Manual, Samp	2.24465	52B14/NW-033a,b
Seeley Lake	Freewest Resources Canada Inc.	2001	GL, Lc, Samp	2.23105	42D16/SW-117
Senga Lake	Buck Lake Ventures Ltd.	2002	GL, Samp	2.24368	52H04/SW-015
Senga Lake	Fenwick, K.	1999	Pr, Samp	OP99-477	52H04/SW-013
Senga Lake	New Millennium Metals Corp.	2000	GL, Samp	2.22559	52H04/SW-012
Senga Lake	New Millennium Metals Corp.	2000	GL, Samp	2.23118	52H04/SW-014, 52H04/NW-031
Shabaqua Corners	Avalon Ventures Ltd.	1998	DDH, Samp	2.24286	52A12/SW-115, 52A12/SE-029
Shabaqua Corners	Kukkee, P.	2001	Str, Tr, Samp	2.22357	52A12/SW-111
Shabaqua Corners	Kukkee, P.	2001	Str, Samp	2.23465	52A12/SW-112
Shabaqua Corners	Kukkee, P.	2002	Str, Samp	2.23514	52A12/SW-116
Shabaqua Corners	Landore Resources Inc.	2002	GL, DDH, Samp	2.24197	52A12/SW-114
Shabaqua Corners	Noranda Exploration Ltd.	1978	GC, GEM, GL, GM	2.2097	52A12/SW-113
Shabaqua Corners	Stares, M.	1999	DDH, Samp	OP99-451	52A12/SW-109
Shabaqua Corners	Stares, S.	1999	DDH, Samp	OP99-452	52A12/SW-108
Shabaqua Corners	Wing, A.	1999	Pr	OP99-433	52A12/SW-110
Sharp Lake	Morehouse, W.	2002	GL, Samp	2.23914	52G01/NE-009, 52G08/SE-005
Shebandowan Lake	Landore Resources Inc.	2000	GL, Remote Sensing, Samp	2.21059	52B09/SE-111, 52A12/SW-107
Shebandowan Lake	Landore Resources Inc.	2002	GL, Samp	2.23685	52B09/SE-112
Shebandowan Lake	Landore Resources Inc.	2002	DDH	2.23908	52B09/SE-113
Shebandowan Lake	Landore Resources Inc.	2002	DDH, Samp	2.24280	52B09/SE-114
Shebandowan Lake	Landore Resources Inc.	2002	DDH, Samp	2.24240	52B09/SE-115
Shelby Lake	Canadian Golden Dragon Resources Ltd.	2001	GL, Lc	2.22158	52H04/SE-021
Shelby Lake	Canadian Golden Dragon Resources Ltd.	2001	GM, IP, Lc	2.23121	52H04/SE-022
Shelby Lake	East West Resource Corp.	2001	DDH, Samp	2.23433	52H04/SE-024
Shelby Lake	New Millennium Metals Corp.	2000	GM, IP, Lc	2.22972	52H04/SE-023
Shelby Lake	New Millennium Metals Corp.	2001	GL, Samp	2.22540	52H04/SE-020
Shelby Lake	New Millennium Metals Corp.	2001	GL, Str, Samp	2.24252	52H04/SE-026

Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Shelby Lake	Platinum Group Meals Ltd.	2001	GL, Samp	2.23853	52H04/SE-027
Smiley Lake	Saunders, D.	2001	GEM, GM, Lc	2.21442	52A14/NW-006
Sward Lake	Anderson, C.	2001	Str	2.24488	52A10/NE-059
Sward Lake	Boyd, R.	2001	Pr	2.22428	52A10/NE-058
Sward Lake	Breezy Mountain Amethyst Mines Ltd.	2001	Str, Tr	2.21886	52A10/NE-056
Sward Lake	Thibault, D.	2000	Str, Tr	2.21846	52A10/NE-057
Tartan Lake	Grieve, M.	2001	Str	2.24031	52A10/NW-025
Tartan Lake	Harper, G.	1999	GC, GM, Pr, Lc, Samp	OP99-403, OP99-544	52A15/SW-020, 52A10/NW-024
Tib Lake	Fort Knox Resources Inc.	2000	GL, Samp	2.20994	52H04/NW-028
Tib Lake	Houston Lake Mining Inc.	2000	GM, IP, Lc	2.21601	52H04/NW-029, 52H05/SW-016
Tib Lake	Houston Lake Mining Inc.	2001	GL, DDH, Samp	2.23137	52H04/NW-034, 52H05/SW-017
Tib Lake	Lac des Iles Mines Ltd.	2000	GL, Str, Tr, Samp	2.23314	52H04/NW-033, 52G01/NE-008
Tib Lake	New Millennium Metals Corp.	2000	GL, Samp	2.21363	52H04/NW-026
Tib Lake	New Millennium Metals Corp.	2000	GL, Samp	2.21525	52H04/NW-027
Tib Lake	New Millennium Metals Corp.	2000	GL, Samp	2.22905	52H04/NW-030
Tib Lake	Platinum Group Metals Ltd.	2000	GL, Samp	2.23120	52H04/NW-032
Wabikoba Lake	Pinksen, J.	1999	Pr, Samp	OP99-473, OP99-472	42C13/SW-119
Wabikon Lake	Phoenix Matachewan Mines Inc.	2002	Str, Samp	2.23841	52H06/SW-028, 52H06/NW-012, 52H05/SE-010
Wabikon Lake	Wagg, C.	2001	Str, Tr, Samp	2.22494	52H06/SW-026
Weaver Lake	Berland Resources Ltd.	2001	GEM, GM, Lc	2.22341	52G09/SE-004
Weaver Lake	Berland Resources Ltd.	2001	Pr	2.22961	52G09/SE-005

East West Resource Corporation and **Canadian Golden Dragon Resources Ltd.** executed a letter of intent with **Anglo Gas Corporation**, by which Anglo may earn a 65% interest in the Hele property (News Release, November 18, 2002). Prior to the return of the property two holes of 254 m and 250 m, drilled in June, 2002 by **Teck Cominco Limited**, intersected an upper gabbro and lower ultramafic (peridotite) phase containing native copper. The lower 10 to 20 m of the ultramafic section consisted of a gabbro-pyroxenite with minor specks of chalcopyrite, similar in appearance to the lower favourable host rock at Seagull, in contact with Kama Hill formation of the Sibley group of sediments (*ibid*).

Three other Cu-Au projects were acquired and sampled in 2002 in the Thunder Bay South District: the Glacier, Jackpine and Barbara Lake properties. Drill testing of drill hole pulsed EM anomalies at the Seagull project are being planned. Negotiations on future joint-ventures are continuing (News Release, January 6, 2003).

Prospector **Pat Haskell** discovered an extension of the ultramafic intrusion which underlies the adjacent Hele property of East West in the southwestern corner of Hele Township in early 2002. Medium-grained pyroxenite is in contact with Rossport Formation dolostone and is overlain by a diabase sill. A grab sample with minor, blebby chalcopyrite collected by Resident Geologist's staff at the Foxden occurrence returned 412 ppm Cu, 1011 ppm Ni, 36 ppb Pt and 27 ppb Pd (Resident Geologist's Files, Thunder Bay South District, Thunder Bay).

McVicar Minerals Limited carried out a reconnaissance prospecting program on its Foxtrap property, straddling the northwestern margin of the Coldwell alkaline complex near Marathon in the fall of 2002. **McVicar and BHP Billiton World Exploration Inc.** also entered into an option/joint-venture agreement with **Avalon Ventures Ltd.** on the Black Bay property on the Black Bay Peninsula, approximately 80 km northeast of Thunder Bay (News Release, December 23, 2002). The property covers a zoned, Mesoproterozoic, mafic-ultramafic intrusion which is believed to be prospective for Noril'sk-type nickel-copper-PGE deposits. Earlier in 2002, Avalon conducted an aeromagnetic survey over the property, which defined the extent of the intrusion and some details on its internal structure. The optionees plan to conduct a follow-up airborne EM survey early in 2003 using the deep-penetrating MegaTEM system. This will be followed by ground surveys over any significant EM conductors and possibly drilling (*ibid*).

On the Legris Lake property, optioned jointly by **Avalon Ventures Ltd.** and **Starcore Resources Ltd.**, a 7-hole, 860 m diamond drilling program was completed in May, 2002. This represented the final component of the \$1.0 million work program initiated in May, 2001, under a joint-venture agreement with **Placer Dome (CLA) Ltd.** The seven holes tested five new target areas in the Legris Lake intrusive complex, identified from ground geophysical data, but no significant new PGE mineralization was intersected in any of the seven holes (News Release, July 23, 2002). Placer Dome elected to abandon its option to earn a 60% interest in the Legris Lake property, with no further obligations (News Release, August 21, 2002). Avalon and Starcore returned the property to the original vendors in January, 2003 (K. Fenwick, Prospector, personal communication, 2003). Extensive ground surveys and drilling had identified a number of zones on the property since initial prospecting identified PGE-mineralized rocks on surface in the fall of 1999 (Avalon Ventures Ltd., World Wide Website, <http://www.avalonventures.com>).

L.E.H. Ventures Ltd. drilled four holes at their Geordie Lake property in the Coldwell alkaline complex. Drill Hole 02-04 (see table below), located about 100 m south of Hole 02-03, intersected the main mineralized layer about 130 m down-dip from Hole 00-08 (News Release, November 06, 2002). This hole extends the deposit to the south and west and confirms down-dip continuity of the various layers.

LAYER	FROM (m)	TO (m)	WIDTH (m)	Cu (%)	Ni (%)	Co (%)	Pt (g/t)	Pd (g/t)	Au (g/t)	Ag (g/t)
B-Hi	166.37	170.40	4.03	0.18	0.011	0.008	0.031	0.351	0.023	3.0
A-Hi	197.89	211.59	13.70	0.64	0.017	0.009	0.082	1.258	0.075	4.5
A-Total	194.81	213.08	18.27	0.54	0.016	0.008	0.067	1.055	0.067	4.0
A+2+B	161.28	213.08	51.80	0.24	0.010	0.007	0.032	0.445	0.031	2.85

Drilling is expected to resume after spring break-up (*ibid*). In a report dated February 22, 2002, the Geordie Lake deposit has received an independent evaluation of resources above a recovered Cdn\$10 per tonne cut-off with categories based on geologic and grade continuity as follows:

Resource Category	Tonnage (Mt)	Cu (%)	Ni (%)	Co (%)	Pt (g/t)	Pd (g/t)	Au (g/t)	Ag (g/t)
Indicated	24.4	0.326	0.011	0.007	0.03	0.537	0.04	2.52
Inferred	5.4	0.36	0.012	0.007	0.04	0.626	0.05	3.0

(News Release, September 16, 2002)

Agnico-Eagle Mines Limited and **Houston Lake Mining Inc.** carried out a joint-venture exploration program on the Tib Lake property. Phase 1 of the program involved geological and detailed mapping, soil sampling, trenching and stripping, channel sampling and reinterpretation of previous geophysical surveys (magnetic and IP) (News Release, October 9, 2002). A 10-hole, 1500 m Phase 2 diamond drilling program targeted the two main PGE occurrences on the property: the Kuhner Zone and the West Dog occurrence (News Release, October 31, 2002). The following table illustrates the best intersections from each of the ten drill holes:

Hole	From (m)	To (m)	Length (m)	Pt (ppb)	Pd (ppb)	Au (ppb)	Pt+Pd+Au (ppb)
TL-02-21	142.90	144.00	1.10	170	284	50	504
TL-02-22	48.00	50.00	2.00	157	482	136	789
TL-02-23	53.00	54.00	1.00	15	34	10	59
TL-02-24	60.88	62.97	2.09	226	589	98	913
incl.	61.88	62.97	1.09	260	672	124	1056
TL-02-25	29.89	39.09	9.20	293	664	121	1078
incl.	35.51	37.09	1.78	763	1746	309	2818
TL-02-26	63.19	64.69	1.50	105	88	2	195
TL-02-27	147.40	148.90	1.50	65	4	22	91
TL-02-28	107.78	109.28	1.50	30	62	6	98
TL-02-29	72.67	74.17	1.50	55	148	14	217
TL-02-30	55.43	56.30	0.87	60	34	12	106

(News Release, February 04, 2003).

Agnico Eagle is currently evaluating the data from the drilling program to decide its next step.

Buck Lake Ventures Limited carried out work on properties in the Lac des Iles area. Drilling on the Wakinoo property (2 holes totaling 413 m) returned 0.46 g/t Pd over 8.56 m (*Canada Stockwatch*, October 09, 2002). Prospecting and sampling were carried out on the Tib Lake property, optioned in 2002 from Lac des Iles Mines Ltd.; the option was relinquished in early 2003 (*Canada Stockwatch*, January 08, 2003).

AntOro Resources Inc. carried out an initial program of prospecting and sampling on their Lac des Iles property in July. Samples returned encouraging results, prompting the expansion of the exploration effort (News Release, October 24, 2002). Follow-up line cutting, magnetometer and VLF-EM and soil geochemical surveys, geological mapping and outcrop sampling was completed in September and November, 2002; results have not yet been released (AntOro Resources Inc., World Wide Website, <http://www.antoro.com>).

Phoenix Matachewan Mines continued prospecting and trenching work on their Whitton Lake property near Lac des Iles, in the Heaven Lake greenstone belt (World Wide Website, <http://www.phoenixmatachewan.com>). An autumn 2001 work program discovered a new copper-nickel showing 335 m west of the earlier discovered 1500 West occurrence. Both zones occur near the axis of a kilometre-long, coincident magnetic and conductive geophysical trend. Spring 2002 follow up showed blebby-textured mineralization across widths of at least 6.0 m, well removed from the sheared to brecciated footwall contact of the intrusion (*ibid*).

North Atlantic Nickel Corp. drilled three holes on their Blake Project, south of Thunder Bay in 2002, but terminated their option agreement late in the year (News Release, November 26, 2002; J. North, North Atlantic Nickel Corp., personal communication, 2003).

Gold Exploration

Freewest Resources Canada Inc. carried out mapping, prospecting and geophysical surveys and discovered a new bonanza-grade gold occurrence during follow-up trenching on its Smoke Lake property, situated 20 km north-northeast of Marathon and approximately 28 km northwest of the Hemlo mines (News Release, January 14, 2003). The new occurrence, known as Super G, was discovered by backhoe trenching in late 2002 in a successful effort to locate the source of numerous boulders of quartz vein material containing visible gold, located nearby (Smoke Lake Float occurrence). Very limited stripping uncovered a narrow, discrete shear zone over a strike length of 25 m and over widths of up to 2.5 m in strongly silicified, mafic metavolcanic amphibolite. The shear zone is healed by a white to grey, vuggy quartz vein containing pyrite and visible gold (*ibid*). Three grab samples collected from the vein yielded assays of 846.49 g/t Au, 391.40 g/t Au and 35.90 g/t Au. A series of sawn channel samples were cut across the mineralized structure over its exposed 22 m strike length. The average assay returned from the 24 channel cuts is 16.01 g/t Au, with values ranging from 0.03 g/t Au to 229.70 g/t Au. The best channel cuts across the auriferous zone yielded assays of 33.06 g/t Au across 1.85 m and 14.41 g/t Au over 1.68 m. The Super G is only one of four new gold occurrences recently discovered on the Smoke Lake property. The occurrences lie within a north-northeasterly trending structural corridor traced intermittently by prospecting and stripping over a strike length of 700 m and over a minimum width of 500 m. The other occurrences within the corridor include the Crocker Float (up to 312.90 g/t Au), the ILD Occurrence (up to 7.36 g/t Au) and the Double Deuce showing (up to 9.03 g/t Au or 0.26 oz/t Au). The mineralized corridor remains completely open-ended along strike. Detailed, systematic geophysical surveys, including magnetometer and Induced Polarization surveys, will be undertaken in early 2003 over the mineralized corridor to provide a database for subsequent diamond drilling (*ibid*).

On the adjacent Goodchild Lake property, **Jonpol Explorations Ltd.** and **Saxony Explorations Ltd.** started a backhoe-assisted, trenching/stripping and channel sampling program in October 2002 over the MZ and Moose Mountain auriferous sulphide zones (Jonpol Explorations Ltd., News Release, November 04, 2002). Prospecting earlier in 2002 and subsequent follow-up mechanical work uncovered four separate, gold-bearing sulphide zones (Lucky, MZ, J&J and UGM). The MZ, J&J and UGM zones are located over a strike length of 450 m along the southeast margin of the Beggs Lake granodioritic stock. Of the 59 samples submitted from the Lucky Zone on the western margin of the Beggs Lake stock, 39 returned 1 to 500 ppb Au, 12 returned 500 to 1000 ppb Au, and 8 returned over 1.0 g/t Au. Two samples from the latter group returned values of 7.1 g/t and 22.16 g/t Au (*ibid*). A diamond drill program was carried out in late 2002 and early 2003 to test the depth extension of the known gold-bearing sulphide and selected IP conductive zones along the contact between the intrusion and host metavolcanic rocks. Three diamond drill holes, totaling 513 m tested the Lucky Zone, returning assays of 1.29 g/t Au over 1.00 m, 2.88 g/t Au over 1.14 m and 0.26 g/t Au over 3.16 m (News Release, January 28, 2003). A 0.42 m intersection from the UGM Zone returned 3.6 g/t Au. A second phase of drilling is planned to test both gold and base metal targets (*ibid*).

Alto Ventures Ltd. acquired and drilled the Coldstream property near Kashabowie. An evaluation by Newhawk Gold Mines Ltd. in 1995 identified a resource of 7.6 million tonnes grading 2 g/t Au (*Canada Stockwatch*, January 09, 2003). An initial, seven-hole program was carried out in November 2002 to extend known mineralized zones totaled 1668 m. Significant intersections are listed below:

Drill Hole	Zone	From (m)	To (m)	True Width (m)	Gold (g/t)
K-38	East	139.9	147.0	5.3	2.1
K-39	East	233.0	250.0	16.6	1.4
K-44	East	196.0	225.0	19.8	1.0
K-41	Main	106.0 (<i>sic</i>)	101.0	17.2	2.6
<i>Including</i>		83.0	92.0	6.7	4.9

A report on the potential of the property will be submitted to Kinross Gold, which may greatly expand the scope of future exploration (*ibid*).

Beaufield Consolidated Resources Inc. and **Sparton Resources Inc.** acquired and drilled their Cedar Lake property, adjacent to the Hemlo gold mines in 2002. The purpose of this drilling was to test geophysical and geochemical targets in the proximity of the Cedar Lake Pluton. Although earlier exploration within this area had reported anomalous gold values in pyritiferous sediments, the first three diamond drill holes failed to return any significant gold values (News Release, December 02, 2002). The companies had also signed a Purchase and Sale Agreement with Newmont Canada Limited on two separate claim groups in the Hemlo camp. Both Sparton and Beaufield are currently reviewing data on these properties and are jointly designing exploration programs to evaluate untested targets as part of their Hemlo joint-venture (*ibid*).

AntOro Resources Inc. acquired and explored a number of properties in the Hemlo camp in 2002 (AntOro Resources Inc., World Wide Website, <http://www.antoro.com>). They carried out magnetometer and VLF-EM surveys, geological mapping, reconnaissance soil and rock sampling and prospecting on their Golden Hemlo I and II properties in Bomby and Brothers townships, 2.5 km east of the David Bell Mine. Prospecting and sampling was undertaken on the White Lake property, which hosts the Carroll-MacDougall and Patio Lake occurrences. Encouraging results have prompted the consideration of further work, including drilling (*ibid*), as well as the acquisition of two additional properties (White Lake II and Golden Bryant) (News Release, December 31, 2002).

Canadian Empire Exploration Corp. completed their initial drilling program on the Hemlo West (Heron Bay) property. Canadian Empire may earn an 80% interest in the property from **Teck Cominco Limited** by making staged exploration expenditures of \$2.0 million and then maintaining that interest by funding on-going exploration through pre-feasibility. The drilling program was designed to test the continuity of gold mineralization within a 1.2 km section of the Hemlo-Heron Bay shear zone (News Release, September 18, 2002). Drill hole HW-02-03 intersected 2.1 g/t Au over 7.1 m (from 381.4 to 388.5 m) with intervals of 9.1 g/t Au and 26.0 g/t Ag over 1.2 m. Hole HW-02-03 was collared 700 m east of 3 previously drilled holes with intersections of 12.8 g/t Au and 365.0 g/t Ag over 3 m (*ibid*). Drill hole HW 02-02 intersected three narrow mineralized zones, the best of which returned 13.8 g/t Au over 0.4 m. Hole HW 02-02 was drilled to test for gold mineralization 300 m up-dip from a previously drilled hole that assayed 5.9 g/t Au and 87.0 g/t Ag over 3.4 m and another hole that graded 9.3 g/t Au and 184.0 g/t Ag over 7.3 m. Drill hole HW 02-01, drilled to test for gold mineralization 180 m up-dip from previously drilled holes that assayed 22.2 g/t Au and 350.0 g/t Ag over 0.4 m and 43.6 g/t Au and 450.0 g/t Ag over 0.6 m, intersected lower-grade gold values over narrow intervals. Although most holes intersected strong alteration, quartz veins and sulphide mineralization characteristic of the Hemlo camp host rocks, no significant gold-silver assays for drill holes numbered 2002-4 to 2002-7 were obtained. In view of drilling commitments on other projects in Canada, plans for further drilling of Hemlo West will be held in abeyance for a few months (News Release, October 03, 2002).

Moss Lake Gold Mines Ltd. released results of 6396 feet of diamond drilling on its Moss Lake property in the Shebandowan greenstone belt. The best gold values are associated with fracture-controlled and disseminated pyrite,

including 8.358 g/t Au over 1.6 feet. Hole ML-02-006 cut a weighted average interval of 18.710 g/t Au over a core length of 2.8 feet associated with the silicified contact area of a diorite sill (Press Release, September 04, 2002).

Valerie Gold Resources Ltd. announced the completion of its 2002 field program at the Tower Mountain property, located 40 km west of Thunder Bay. The program included outcrop mapping and sampling, trenching and 1042 m drilling and has resulted in the discovery of several new gold zones within a regional gold trend near the Tower Mountain stock (*a.k.a.* "Tower Syenite") (News Release, January 16, 2003). Two of the new gold zones intersected in two of the diamond drill holes contain high grades that range from 5.05 g/t Au, up to 23.17 g/t Au across a standard sample width of 1.5 m. In addition, these zones tend to be associated with or contained within broad zones of lower-grade gold mineralization that in one case returned a weighted average grade of 1.05 g/t Au over a length of 73.5 m. A 12.0 m section in DDH02-2 returned 3.28 g/t Au (*ibid*). Ten trenches were completed in 2002 and four gold mineralized zones, called "U", "V", "W" and "X", were sampled, returning assays ranging up from 1.20 g/t Au. The most significant results came from the U and V areas that are situated about 100 m apart in the central part of the structural trend. Chip samples from the U zone trench returned gold assays of 1.055 g/t Au, 1.575 g/t Au and 108.81 g/t Au. Channel samples close to this high-grade area averaged 1.65 g/t Au over a total sample length of 14.1 m. The V zone trench had similar geology and gold grades, and in one area measuring 1 m by 1 m assayed 6.49 g/t Au. The U and V gold zones occur up dip from the broad zones of gold enrichment found at a depth of 158 m in hole DDH02-02 and in the last 73.5 m of DDH02-3 (*ibid*). Another high-grade intersection in DDH02-5 (2.40 g/t over 6.0 m) included an interval of 1.5 m that assayed 8.41 g/t (News Release, January 22, 2003). In addition, the results obtained from holes DDH02-04 and -05 confirm the presence of significant gold mineralization along the Tower Mountain structural trend over a strike length of approximately 700 m (*ibid*).

Valerie also announced that it entered into an option agreement to acquire the Bateman Lake Property that is located to the west side of the Tower Mountain claims (News Release, January 16, 2003).

In 2002, **Teck Cominco Limited** drilled their White River, Toothpick and Heron Bay properties in the Hemlo greenstone belt. The Heron Bay project is a joint-venture with Canadian Empire Exploration Corp. (*see above*) (J. Paakki, Teck Cominco Limited, personal communication, 2003).

RK Exploration Group has acquired a number of properties in the Schreiber greenstone belt (World Wide Website, <http://www.rkexplore.com>) and has conducted prospecting and sampling programs on a number of them. Small-scale mining of the typically high-grade gold-bearing quartz veins is being considered.

Base Metal Exploration

RJK Explorations Ltd., in conjunction with its joint-venture partner **GLR Resources Inc.**, continued to try to track down the source of a significant glacial polymetallic boulder train containing high zinc and precious metals, located on their Stares-Calvert property in the Shebandowan greenstone belt. Geological mapping, which was completed in the northern and southern parts of Aldina and Sackville townships respectively, identified a predominantly drift-covered, rhyolitic unit located approximately 1.5 to 2 km north of the main felsic unit where the companies' previous exploration efforts and most of the diamond drilling have been concentrated (News Release, October 30, 2002). The program also included trenching and diamond drilling of 9 holes totaling 1014 m, as well as extensive enzyme leach geochemical sampling and geological mapping. Seven of the diamond drill holes were targeted on a series of coincident induced polarization highs, resistivity lows and magnetic highs in the area between the northern limit of the known mineralized float train and the previous area of intense diamond drilling which resulted in the discovery of a small body of zinc-mineralized outcrop beneath shallow overburden (News Release, August 13, 2002). The companies plan to continue with methodical exploration of the property giving particular attention to the northern felsic unit. A program of geophysical surveying to further define airborne anomalies on the ground, followed by stripping, trenching and drilling is planned (News Release, October 30, 2002).

Inco Limited elected to surrender its option to acquire an interest in its Lumby Lake-Spoon Lake property joint-venture with **Atikokan Resources Inc.** (News Release, April 23, 2002). Atikokan Resources subsequently received a permit to remove and evaluate a 1000 ton bulk sample from its high-grade silver showing. An internal feasibility

report and various financing options have been presented to the company's board for approval (News Release, January 15, 2003).

Intrepid Minerals Corporation is investigating the Nipigon Basin for its iron oxide-copper-gold (IOCG, *a.k.a.* Olympic Dam-type) deposit potential. Intrepid will continue exploration for Olympic Dam-style deposits in eastern Canada during 2003 (News Release, January 02, 2003).

Prospector **Rizvan Stenlund** discovered a iron-copper-gold occurrence northeast of Greenwich Lake in 2002. Grab samples of hematitic and magnetic oxide-rich rock returned up to 470 ppm Cu and 0.03 ounce Au per ton (Resident Geologist's Files, Thunder Bay South District, Thunder Bay).

Diamond Exploration

North Atlantic Nickel Corp. acquired property in the Marmion batholith, northeast of Atikokan, after conducting a 1000 km high-resolution, airborne magnetometer survey in June, 2001 (Company Press Release, July 05, 2001). Although no work was carried out in 2002, drilling is planned for 2003 (J. North, North Atlantic Nickel Corp., personal communication, 2003).

Numerous prospectors continued to explore mafic to ultramafic dyke rocks in the Marathon area. **Rudy Wahl** has garnered interest in his Heron Bay property, where he has discovered numerous mafic to ultramafic dykes and diatreme breccias. Some rocks have been tentatively identified as kimberlitic; they contain olivine and phlogopite [phenocrysts?], in a contained matrix of fine-grained phlogopite, olivine, spinel, perovskite, melilite, chromite and carbonate. Local intrusive rocks have yielded several chromite grains that plot within the diamond intergrowth and inclusion fields (World Wide Website, <http://users.renegadeisp.com/~rwahl/>).

Rare Metal Exploration

Nuinsco Resources Limited announced encouraging results from a small program of surface trenching and subsequent analysis performed at Carleton University on samples taken at its Prairie Lake Carbonatite Complex property near Marathon. Results confirmed the previous evidence of tantalum with niobium in significant amounts of pyrochlore at surface. From seven, widely spaced, small trenches and several pits, some 200 grab samples were taken. Four 50-pound composite samples were collected from four widely separated areas, which were processed for heavy mineral concentrates and to study the pyrochlore grains that carry the tantalum values (News Release, November 5, 2002). While all values from recently collected pyrochlore grains analyzed at Carleton carried values in excess of 1% Ta₂O₅, the highest-grade sample returned 14.4% Ta₂O₅. The average of 11 samples from this area was 7.8% Ta₂O₅, with enriched values of niobium (*ibid*). All 212 samples were assayed using peroxide fusion methods. Over 75% of the samples returned elemental values of greater than 10 ppm Ta; selected samples returned values up to 314 ppm Ta (News Release, December 11, 2002). The Prairie Lake complex is also known to host other industrial minerals, such as apatite, wollastonite and high-grade calcium carbonate.

Table 3. Exploration activity in the Thunder Bay South District in 2002 (keyed to Figures 1 and 2).

Abbreviations			
AEM	Airborne electromagnetic survey	IP	Induced polarization survey
AM	Airborne magnetic survey	Lc.....	Linecutting
ARA	Airborne radiometric survey	Met	Metallurgical testing
Beep	Beep Mat survey	OD	Overburden drilling
Bulk.....	Bulk sampling	ODH	Overburden drill hole(s)
DD	Diamond drilling	PEM	Pulse electromagnetic survey
DDH.....	Diamond drill hole(s)	PGM	Platinum group metals
DGP.....	Down-hole geophysics	Pr	Prospecting
EnvR.....	Environmental Baseline Study	RES	Resistivity survey
GC	Geochemical survey	Samp	Sampling (other than bulk)
GEM.....	Ground electromagnetic survey	Seismic	Seismic survey
GL	Geological Survey	SP	Self-potential survey
GM	Ground magnetic survey	Str.....	Stripping
GRA	Ground radiometric survey	Tr	Trenching
Grav	Gravity survey	UG	Underground exploration/development
HLEM	Horizontal loop electromagnetic survey	VLEM.....	Vertical loop electromagnetic survey
HM	Heavy mineral sampling	VLFEM	Very low frequency electromagnetic survey
IM	Industrial mineral testing and marketing		

	Company/Individual (Occurrence Name) or Property	Township/Area (Commodity)	Exploration Activity
1.	Alto Ventures Ltd. (Coldstream Property)	Burchell Lake area (Au)	DDH
2.	Anderson, C. (Location 3 Property)	McTavish Tp. (amethyst)	Pr, Samp, Str
3.	AntOro Resources Inc. (Lac des Iles Property)	Lac des Iles area (PGE)	GC, GL, GEM, Pr, GL, Samp
4.	AntOro Resources Inc. (White Lake Property)	White Lake (North) & (South) areas (Au)	Pr, Samp
5.	AntOro Resources Inc. (Golden Hemlo I & II Properties)	Wabikoba Lake area (Au)	GM, VLFEM, GC, Samp
6.	Atikokan Resources Inc. (Richardson Lake Property)	Richardson Lake area (Cu, Zn, Au)	GM, GEM
7.	Atikokan Resources Inc. / Fairservice, R. (Finlayson Lake Property)	Finlayson Lake area (Au, Cu, Zn)	GM, VLFEM, LC
8.	Atikokan Resources Inc. / Inco Limited (Lumby Lake - Spoon Lake Property)	Norway Lake area (Ag, Cu, Zn, Pb)	Samp, DDH, GL, GEM, Lc
9.	Avalon Ventures Ltd. (Black Bay Property)	Fluor Island, Williamson Lake, Laurie Lake & Black Bay areas (PGE)	AEM, AM, PR, Samp, GL
10.	Avalon Ventures Ltd. (Caro Lake Grid)	Leckie Lake area (Cu, Ni, PGE)	HLEM, Lc
11.	Avalon Ventures Ltd. / Starcro Resources Ltd. / Placer Dome (CLA) Limited (Legris Lake Property)	Shelby Lake and Whitefin Lake areas (PGE)	GL, Str, Samp, DDH
12.	Avalon Ventures Ltd./ East West Resource Corporation / Canadian Golden Dragon Resources Ltd. (Disraeli Claim Group)	Leckie Lake area (PGE, Cu, Ni)	AM, AEM, GM

	Company/Individual (Occurrence Name) or Property	Township/Area (Commodity)	Exploration Activity
13.	Avalon Ventures Ltd./ East West Resource Corporation / Canadian Golden Dragon Resources Ltd. (Disraeli - Seagull Property) (a.k.a. Wolf Mountain)	Leckie Lake area (PGE, Cu, Ni)	AEM (UTEM), AM, GL, GC, Samp
14.	Beaufield Consolidated Resources Inc. / Sparton Resources Inc. (Cedar Creek Property)	Bomby Tp. And Wabikoba Lake area (Au)	DDH
15.	Bjorkman, K. (Sunshine Property)	Asmussen and Baker tps. (Au)	Pr, Samp
16.	Bjorkman, K. & Fenwick, K. (Central Canada Property)	Hutchinson Tp. (Au)	Pr, Samp
17.	Blakely, G. & M. (Cairngorm Lake Property)	Cairngorm Lake area (Au)	Pr, Samp
18.	Bond, J. <i>et al.</i> (Smoke Lake Property)	Lorna Lake area (Au)	GL, Samp
19.	Buck Lake Ventures Ltd. / Lac des Iles Mines Ltd. (Wakino Lake Property)	Orbit Lake area (PGE)	GL, Samp, DDH
20.	Canadian Empire Exploration Corp. (formerly Northern Crown Mines Ltd.) (Hemlo West Property)	Pic Tp. (Au)	DDH
21.	Canadian Golden Dragon Resources Ltd. (Vanguard Property)	Kashabowie Lake, Burchell Lake, Crayfish Lake & Greenwater Lake areas (Cu, Zn, Au)	DDH
22.	Canadian Golden Dragon Resources Ltd. / Platinum Group Metals Ltd. (South Legris Property)	Lac des Iles, Max Lake, Shelby Lake, Whitefin Lake areas (PGE, Cu, Ni)	DDH, IP, GC
23.	Candor Ventures Corp. (Twist Lake Property)	Adrian Tp. (Cu, Zn, Au)	DDH, Samp
24.	Canplats Resources Corporation (Mount Property)	Pangloss Lake area (PGE, Cu, Ni)	DDH
25.	Canplats Resources Corporation / Platinum Group Metals Ltd. (Stucco Property)	Rightangle Lake & Circle Lake areas (PGE, Cu, Ni)	DDH, AM
26.	Canplats Resources Corporation (Voltaire-Johnspine Property)	Pangloss Lake, Candide Lake & Chief Bay areas (PGE, Cu, Ni)	AM, DDH
27.	Canplats Resources Corporation / East West Resource Corporation (Posh Property)	Lunch Creek area (PGE)	DDH
28.	Canplats Resources Corporation / East West Resources Corporation / Teck Cominco Limited (Mikinak West Property)	Mikinak Lake area (PGE, Cu, Ni)	DDH, HLEM, Lc, AM, AEM
29.	Canplats Resources Corporation / Colby Resources Corp. (Geikie Property)	Cheeseman Lake, Kitchen Lake & Chief Bay areas (PGE, Cu, Ni)	AM
30.	Classic Gold Resources Ltd. (Muisse Lake Property)	Hogarth Lake area (Cu, Ni, PGE)	DDH
31.	Classic Gold Resources Ltd. (Tib Lake Property)	Tib Lake area (Cu, Ni, PGE)	DDH
32.	Convey, G. (Myles Lake Property)	Puddy Lake area (Cu, Ni, PGE)	Pr, Samp
33.	Cunniah Lake Resources (Cunniah Lake Property)	Saganagons Lake area (Au)	Str, Tr, Samp, Pr
34.	Dumont Nickel Inc. / North Atlantic Nickel Corp. (Blake Property)	Blake Tp. (PGE, Cu, Ni)	DDH

	Company/Individual (Occurrence Name) or Property	Township/Area (Commodity)	Exploration Activity
35.	East West Resource Corporation (Glacier Property)	Cosgrave Lake area (Cu, Au)	Pr, Samp
36.	East West Resource Corporation (Jackpine Property)	Blair Lake area (Cu, Au)	Pr, Samp
37.	East West Resource Corporation / Teck Cominco Limited (Stop Property)	Little Sturge Lake area (PGE, Cu, Ni)	DDH, GEM
38.	East West Resource Corporation / Canadian Golden Dragon Resources Ltd. Teck Cominco Limited (Hele Property)	Hele Tp. (PGE, Cu, Ni)	DDH, GEM, Lc, GL
39.	East West Resources Corporation / Canadian Golden Dragon Resources Ltd./ Teck Cominco Limited (Spruce River)	Little Sturge Lake area (PGE, Cu, Ni)	DDH
40.	Falconbridge Limited / McVicar Minerals Ltd. / BHP World Exploration Inc. (Pigeon River Property)	Pardee & Crooks tps. (Cu-Ni-PGE)	AM, AEM, ARA, Agrav, Gradiometer
41.	Fern Elizabeth Gold Exploration Ltd. (Plator Gold Property)	Finlayson Lake & Sawbill Bay areas (Au)	Str, Samp
42.	Freewest Resources Canada Inc. (Smoke Lake Property)	Lorna Lake area (Au)	Mag, IP, GC, Pr, Samp, GL, Str
43.	Gionet, G. & M. (Faries Lake Property)	Cecil Tp. (Cu, Zn, Ni, PGE)	Pr, Samp
44.	Gitennes Exploration Inc. (Badger Property)	Kitchen Lake area (PGE)	GC, Pr, Samp, GL, GM, LC, VLFEM
45.	Gitennes Exploration Inc. (Bear Property)	Ruffo Lake & Kitchen Lake areas (PGE)	GM, GEM, GC, Lc, DDH, Pr, Samp, GL
46.	Hackl, J. & J. (Laurie Township Property)	Laurie Tp. (Au)	Pr, Samp
47.	Haskell, P. (Foxden Property)	Hele Tp. (PGE, Cu, Ni)	Pr, Samp
48.	Holbik, E. & Hakala, J. (Hidden Treasure Property)	Factor Lake area (Au)	Pr, Samp
49.	Houston Lake Mining Inc. / Agnico-Eagle Mines Limited (Tib Lake Property)	Tib Lake area (PGE)	GL, GC, Tr, Str, Samp, DDH
50.	JonPol Explorations Limited / Saxony Explorations Ltd. (Smoke - Goodchild Lakes Property)	Lorna Lake and Cirrus Lake areas (Au)	Pr, Samp, GL, Str, GM, IP, DDH
51.	Kukkee, P. (Gold Cache Property)	Horne Tp. (Au)	Str, Samp
52.	Kwiatkowski, R. & Kukkee, E. (Sungold Property)	Powell Lake area (Au)	Pr, Samp
53.	L.E.H. Ventures Ltd. / Gryphon Metals Corporation / Coubran Resources Ltd. (Geordie Lake Property)	Seeley Lake area (PGE)	DDH
54.	Lac des Iles Mines Ltd. (Lac des Iles Mine Property)	Lac des Iles area (PGE, Cu, Ni)	DDH
55.	Lac des Iles Mines Ltd. / Buck Lake Ventures Ltd. (Tib Lake Property)	Tib Lake area (PGE)	GL, Samp
56.	Landore Resources Inc. (Gold Creek Property)	Duckworth Tp. (Au)	GL, Samp, DDH
57.	Landore Resources Inc. (Caltor Property)	Laurie Tp. (Au)	DDH, GL, Samp

	Company/Individual (Occurrence Name) or Property	Township/Area (Commodity)	Exploration Activity
58.	McVicar Minerals Ltd. / BHP World Exploration Inc. (Foxtrap Property)	Foxtrap Lake area (Cu-Ni-PGE)	Pr, Samp
59.	Michano, D., Gionet, B. & Wahl, R. (Foxtrap Creek Property)	Foxtrap Lake and Killala Lake areas (Diamonds, Rare Earth Elements)	Pr, Samp
60.	Michano, D., Renner, R., Moses, P. & Wahl, R. (Dead Horse Creek Property)	Foxtrap Lake and Killala Lake areas (Diamonds, Rare Earth Elements)	Pr, Samp
61.	Moffatt, R. (Fern Elizabeth Property)	Freeborn Tp. (Au)	Str, Pr, Samp
62.	Morehouse, W. & Richmond, W. (Mirage Lake Property)	Sharp Lake area (PGE, Cu, Ni)	GL, Samp
63.	Morehouse, W. (Mud Lake Property)	Crooked Pine Lake area (PGE, Cu, Ni)	DDH
64.	Moses, P. (Larry Lake Property)	Santoy Lake area (Cu, Zn, Au)	Pr, Samp
65.	Moss Lake Gold Mines Ltd. (Moss Lake Property)	Moss Tp. (Au)	DDH, IP, Samp
66.	Noranda Inc. (Rope Lake Property)	Rope Lake area (Cu, Zn)	Pr, Samp
67.	North American Gem Incorporated / Hackl, J. (Crayfish Property)	Haines Tp. (Cu, Ni, PGE)	GL, Samp
68.	North American Palladium Ltd. (Three Finger Lake Property)	Pic Tp. (Cu, Ni, PGE)	GL, Samp
69.	Nuinsco Resources Ltd. (Prairie Lake Property)	Killala Lake area (Rare Metals)	Pr, Samp, Str, Tr
70.	Phoenix Matachewan Mines Inc. (Whitton Lake Property)	Wabikon Lake area (Cu, Ni, PGE)	Tr, Str, Pr, Samp
71.	Pitkanen, R. (Lakehead Gold Mines Property)	Gorham Tp. (Au)	Str, Samp
72.	Platinum Group Metals Inc. / East West Resource Corporation / Maple Minerals Ltd. / Wheaton River Minerals Ltd. (Shelby Lake - Lac des Iles River Property)	Shelby Lake area (PGE)	DDH, Pr, Samp, Tr, GL
73.	Platinum Group Metals Ltd. (Taman and Taman East Properties)	Senga Lake area (PGE)	Pr, Samp
74.	Platinum Group Metals Ltd. / East West Resource Corporation (Pebble Property)	Circle Lake area (PGE)	DDH, AM
75.	Probe Mines Limited (Serpent Creek Property)	Aldina Tp. (Cu, Zn)	Lc
76.	RJK Explorations Ltd. (Fire Mountain Property)	Tuuri & Walsh tps. (Au)	Pr, Samp, GC
77.	RJK Explorations Ltd. / GLR Resources Inc. (Adrian Lake Property)	Adrian Tp. (Au, Cu, Zn)	Pr, Samp, GC, GL
78.	RJK Explorations Ltd. / GLR Resources Inc. (Rockstone Lake Property)	Adrian Tp. (Au, Cu, Zn)	Pr, Samp, GC, GL
79.	RJK Explorations Ltd. / GLR Resources Inc. (Aldina South Property)	Aldina Tp. (Au, Cu, Zn)	Pr, Samp, GC, GL
80.	RJK Explorations Ltd. / GLR Resources Inc. (Stares-Calvert Property)	Aldina & Sackville tps. (Cu, Zn, Pb, Ag)	GL, DDH, GM, GC, IP

	Company/Individual (Occurrence Name) or Property	Township/Area (Commodity)	Exploration Activity
81.	RJK Explorations Ltd. / GLR Resources Inc. (Chataway Property)	Sackville Tp. (Au, Cu, Zn)	Pr, Samp, GC, GL
82.	RJK Explorations Ltd. / GLR Resources Inc. (Steel River Property)	Tuuri Tp. (Au, Cu, Zn)	DDH, Samp
83.	RK Exploration Group (Schreiber Properties)	Priske and Syine tps. (Au)	Pr, Samp
84.	Sande, D. & Stewart, E. (Stewart - Sande Property)	Sawbill Bay area (Au)	Str, Samp, Tr
85.	Saunders, D. (Lumby Lake Property)	Norway Lake area (Cu, Zn, Au)	GM, VLFEM, Lc
86.	Smith, B. (MacGregor Township Property)	MacGregor Tp. (Amethyst)	Pr, Samp
87.	Southern Era Resources Ltd. (Manitouwadge Properties)	Barehead Lake area (Diamonds)	GM, Pr, LC, Samp
88.	Stenlund, R. (Greenwich Lake property)	Greenwich Lake area (Au, Cu)	Pr, Samp
89.	Stone, T. & Alanen, H. (Strange Township Property)	Strange Tp. (Amethyst)	Str, Tr
90.	Sutton, G., Benninghaus, E., Luoma, T. (Candide Lake Property)	Pangloss Lake area (PGE, Cu, Ni)	Pr, Samp
91.	Teck Cominco Limited (White River Property)	Laberge and Brothers tps. (Au)	DDH
92.	Teck Cominco Limited (Toothpick Property)	Pic Tp. (Au)	DDH
93.	Teck Cominco Limited / East West Resource Corporation / Canadian Golden Dragon Resources Ltd. (Little Sturge Property)	Little Sturge Lake area (PGE, Cu, Ni)	AEM, GM, GEM, Lc
94.	Trelinski, J. (Devon Township Property)	Devon Tp. (PGE, Cu, Ni)	Pr, Samp
95.	Valerie Gold Resources Ltd. (Tower Mountain Property)	Connec Tp. (Au)	GL, Str, Samp, Pr, DD
96.	Wahl, R. (Heron Bay Property)	Pic Tp. (Diamonds)	Pr, Samp
97.	Wahl, R. and Renner, R. (Fire Mountain Property)	Tuuri Tp. (Au)	Pr, Samp
98.	Wolfden Resources Inc. / Jonpol Explorations Ltd. (Sapawe Property)	Pickerel Lake (North) area & Hutchinson Tp. (PGE, Au)	Lc, Geophysics, DDH

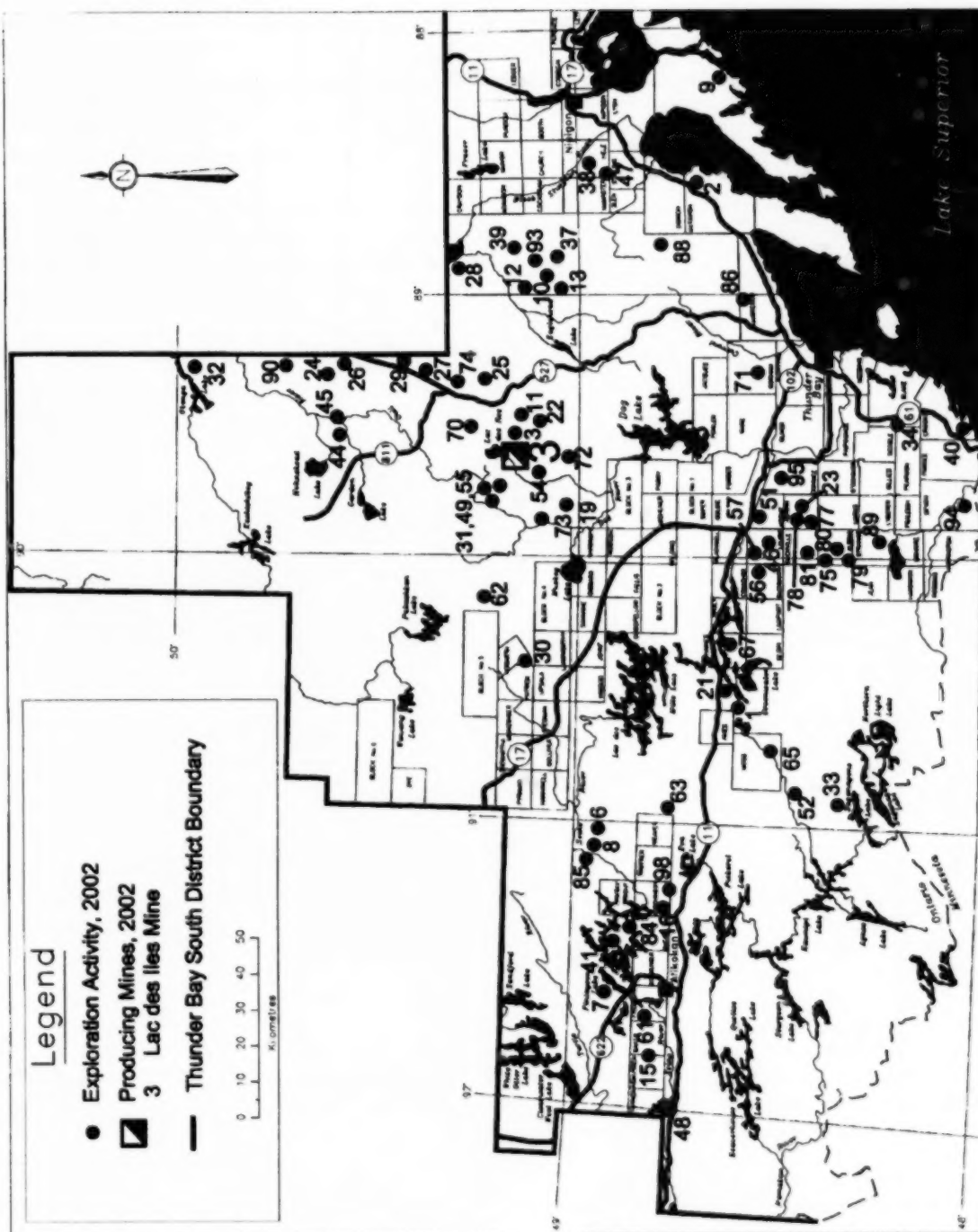


Figure 1. Thunder Bay South Resident Geologist's District, (Western portion), exploration activity, 2002.

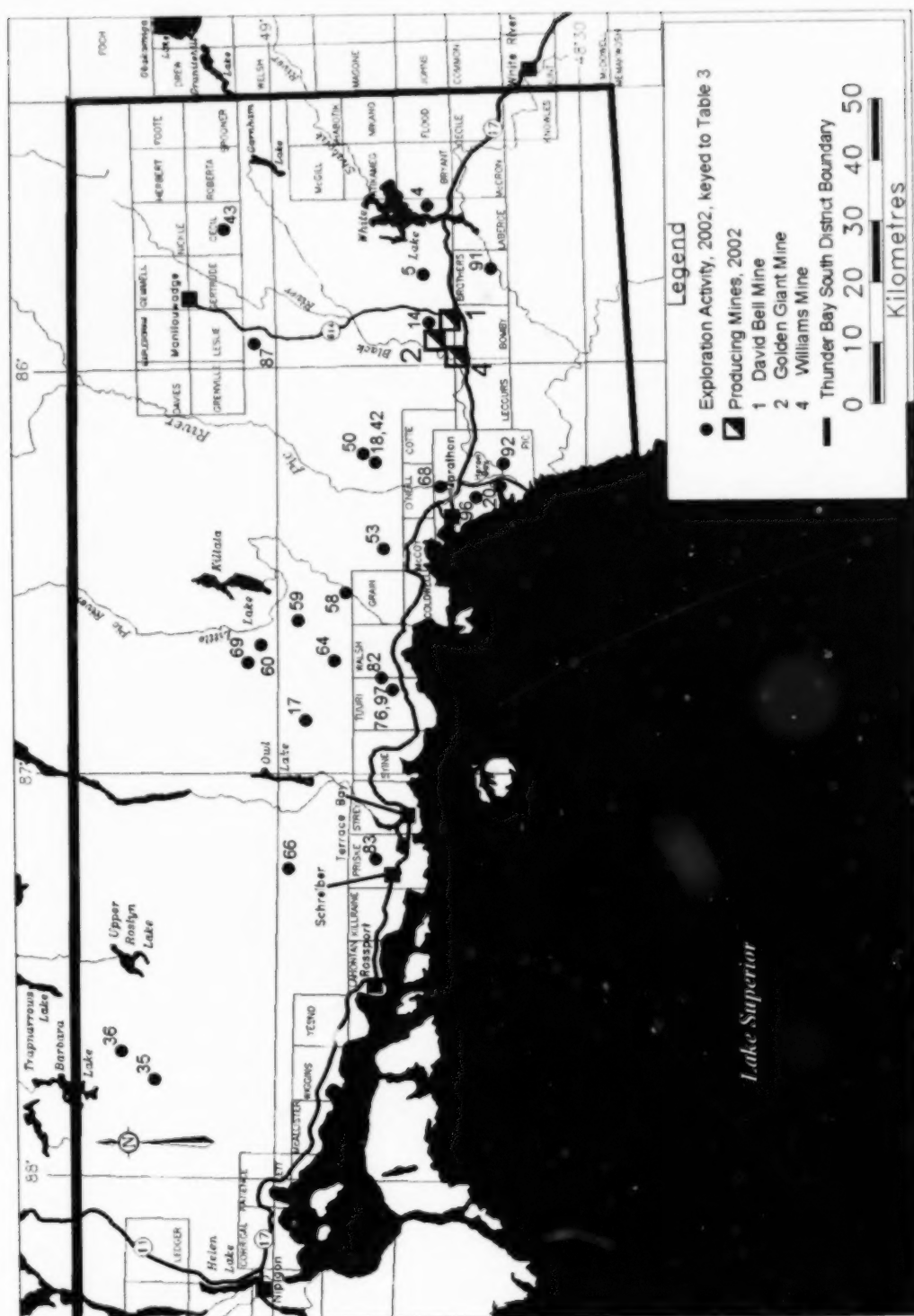


Figure 2. Thunder Bay South Resident Geologist's District, (Schreiber-Hemlo portion), exploration activity, 2002.

RESIDENT GEOLOGIST PROGRAM STAFF AND ACTIVITIES

The Thunder Bay South District is staffed by B.R. Schnieders, Regional Resident Geologist, J.F. Scott and M.C. Smyk, District Geologists and M.S. O'Brien, Regional Support Geologist. B.R. Schnieders took on a temporary (acting) position as the Regional Manager, Northwest Region, during 2002. M. Tuomi was hired as the Thunder Bay District Support Geologist in 2002.

The Thunder Bay South Resident Geologist Program (RGP) dealt with more than 3950 inquiries from the mining sector, other government agencies and the general public. Bi-weekly visits were made to the Marathon satellite office from May until October, usually on Tuesday afternoons. Service was also provided to clients in the Thunder Bay Drill Core Library, as well as remote core storage facilities in Conmee Township (30 km west of Thunder Bay) and in Marathon.

RGP staff conducted 116 property visits to 83 properties in 2002 (Table 4). Fourteen field trips were conducted or attended. Six posters displays were assembled and manned at the Cordilleran Round-Up in Vancouver, the Prospectors and Developers Association of Canada convention in Toronto, the Northwestern Ontario Mines and Minerals Symposium in Thunder Bay and various open houses and conferences. Six technical presentations were delivered. Logistical support and field assistance were given to Ontario Geological Survey geoscientists conducting field work in the Thunder Bay South District. A number of abandoned mine hazards (e.g. Bishop Shaft; Lot 3, McTavish Township; Eldorado Road; Hidden Treasure) were visited by RGP staff (in support of Mines Group, MNDM) who recorded their positions with Global Positioning System units, repaired existing safety fencing and put up hazard ribbons.

R. Tuomi, Data Compilation Geologist, Thunder Bay, posted data, including exploration activity and recommendations, on the RGP website. He also worked on preparing digital maps for the website, reconstructing the RGP website, editing of the Mineral Deposit Inventory database model and designing the success tracking database.

B.R. Schnieders and J.K. Mason attended the 2002 Cordilleran Round-Up held in Vancouver, British Columbia. B.R. Schnieders presented a talk on PGE activity in the Thunder Bay Mining Division. A provincial booth filled with rock samples, cut and polished rock slabs and drill core, display material, handouts, recommendations, and promotional materials, was manned. Commodities such as PGE, diamonds, rare metals, base metals, gold and *Operation Treasure Hunt* products, were highlighted.

M.C. Smyk and R. Tuomi attended the Institute on Lake Superior Geology meeting in Kenora. M.C. Smyk attended the 9th International Platinum Symposium in Billings, Montana, presented a technical paper and co-led a pre-meeting field trip with Jim Miller of the Minnesota Geological Survey. M.C. Smyk ended his tenure on the Regional Committee for the Lake Superior National Marine Conservation Area (NMCA) and provided input to the provincial negotiating committee. He also continued to serve on the Greater Pukaskwa Area Regional Communication Group. M.C. Smyk served as Guest Co-Editor for a Special Issue of *Exploration and Mining Geology* (v.10, nos.1 and 2) dealing with recent developments in exploration and mining in northern Ontario. B.R. Schnieders, M.C. Smyk and J.F. Scott are on the Lake Nipigon Geoscience Initiative Science Committee. J.F. Scott was actively involved with the application of Global Positioning System (GPS) technology (e.g. property, road, detailed grid, stripped area, and air photo base maps), as well as Provincially Significant Mineral Potential (PSMP) maps and Geographic Information Systems (GIS) information. In conjunction with the Northwestern Ontario Prospectors Association and the Thunder Bay Lapidary and Mineral Society, several RGP staff members assisted with the organization and presentation of a mining and minerals awareness area at the Thunder Bay Children's Festival from June 13 to 16, 2002. This "soft-sell" was presented to approximately 2500 children via rock decorating, gold panning and "colouring a mine" activities.

Regional Support Geologist, M.S. O'Brien, continued his mineral development consultant role as the MNDM contact for the Pearl Lake Amethyst Mine site cleanup. The former owner of this amethyst mine, Mrs. E. Castagne, appointed B. Richardson and D. Arsenault as her agents to complete the work by June 30, 2003. They staked 2 single unit claims to cover the most prospective portions of the former leases. M.S. O'Brien completed 10 of the 14

sets of mineral values maps required for presentations by the Regional Land Use Geologist at Forest Management Plan and Local Citizen Committee meetings. The remaining 4 sets will be completed early in 2003.

Table 4. Property visits conducted by the Thunder Bay South Regional Resident Geologist Staff in 2002.

Number	Property/Occurrence
1.	Aki Siltamaki
2.	Aldina /Adrian Twp.
3.	Ancliff Station
4.	Anderson Amethyst
5.	Arrow Lake
6.	Bear Property (Kitchen Lake Road)
7.	Bergman Property
8.	Beulah Iron Mine
9.	Binabick Lake
10.	Black Fox Lake
11.	Blue Points Mine
12.	Blue Star Amethyst Trench
13.	Breezy Mountain
14.	Carden Cove Syenites ^{FT}
15.	Castagnes
16.	Cavers Hill
17.	Central Canada ^{PE}
18.	Chub Lake Area / Black Vein ^R
19.	Coldwell Complex ^{FT}
20.	Crystal Creek Amethyst
21.	Cunniah Lake ^{PE}
22.	Danbill Amethyst Mine
23.	Diamond Willow Mine
24.	Disraeli Lake
25.	Dorion Mine / Bishop shaft
26.	Dorion Twp.
27.	Dutchak Marble
28.	East & West Powder
29.	Eldorado Road (shaft)
30.	Enterprise Mine
31.	Escape Lake Road Lamprophyre ^R
32.	Fern-Elizabeth Property ^R
33.	Fire Mountain ^{PE}
34.	Frank West / Pistol Lake Property
35.	Geomaque / Marathon Deposit ^{FT}
36.	Good Morning Lake Fault Breccia
37.	Great Lakes Nickel ^{FT}
38.	Hackl-Laurie Twp. ^{PE}
39.	Hare Lake (Marathon Dimension Stone)
40.	Harold Lake Zephyr Zone ^R
41.	Hele / Stirling Townships
42.	Hemlo Highway Section ^{FT}
43.	Heron Bay ^{FT}
44.	Hidden Treasure ^{PE} / Mayflower Mine
45.	Itsnotyourmine

Number	Property/Occurrence
46.	Lac des Îles Mine ^{FT}
47.	Laurie & Horne Twps.
48.	Legris Lake
49.	Lot 3, McTavish Township
50.	Magone Lake
51.	McTavish Twp.
52.	Minoletti
53.	Mud Lake / Kaministiquia (Axinite)
54.	NE Turtle Hill
55.	Nickelby Road Pegmatite
56.	Nipigon Basin ^{FT}
57.	North Coldstream Mine
58.	Noyes
59.	Orbit Lake Area
60.	Powell
61.	Prairie Lake Carbonatite
62.	Ray Smith
63.	Rebair Property
64.	Richardson Amethyst
65.	Rinker Lake Area
66.	Ripple Lake
67.	Ruby Lake Marble
68.	Schreiber Porphyries ^R
69.	Shuniah Mine
70.	Simard-Swetz
71.	Smoke Lake
72.	Stares - Calvert
73.	Stenlund / Greenwich
74.	Sunbeam Mine
75.	SunGold ^{PE}
76.	Sunshine / Sunshine Extension ^{R, PE}
77.	Thibault Amethyst
78.	Thunder Bay Agate Mine ^{FT}
79.	Tower Syenite
80.	Vanguard
81.	Waino Hill - Conmee Area
82.	Windblown Lake Area
83.	Wolf Mountain

^R described in RECOMMENDATIONS FOR EXPLORATION, this report

^{PE} described in PROPERTY EXAMINATIONS, this report

^{FT} visited during field trip conducted by Resident Geologist's staff in 2002

PROPERTY EXAMINATIONS

Hidden Treasure Property

This property is located approximately 40 km west of Atikokan and straddles the Canadian National Railway between the Calm Lake and Flanders section points. Torrential rains in June, 2002 led to flooding and subsequent erosion of the rail line, resulting in the creation of new outcrop exposures (generated either by floodwaters or mechanical excavation) along the tracks near the Mayflower Mine, situated approximately 50 m south of the tracks. The present property was subsequently staked by prospectors John Hakala and Ed Holbik.

The claim group is situated within the west-trending Calm Lake greenstone belt near its southern margin, delineated by the Quetico Fault. The area was mapped most recently by Young (1961) and Fumerton (1985) and described by Lavigne and Scott (1995). It is underlain predominantly by intermediate to felsic metavolcanic rocks, minor metasedimentary rocks and their highly strained and altered equivalents. The ubiquity and intensity of strained and foliated rocks provides information on hitherto poorly documented shear zones and related structures that have implications for gold mineralization.

Strongly foliated (290/70N), but recognizable intermediate to felsic pyroclastic rocks are exposed along the railway near Mills Creek, south of Long Lake. Lapilli tuff and pyroclastic breccia host (sub-)parallel sheared and altered zones ≤ 60 cm wide, characterized by iron carbonate, chlorite, minor pyrite and quartz veins and pods. On the west side of the creek, just south of the railway, an old pit (UTM Zone 15N (NAD27) 563242 easting / 5399425 northing), reported on a map by Boss Mining Syndicate in 1934 (Resident Geologist's Files, Kenora District) exposes a "crack-seal"-textured quartz vein. It is hosted by iron carbonatized, sericite-chlorite schist and reportedly strikes east-northeast (E. Holbik and J. Hakala, Prospectors, personal communication, 2002). Recent excavation near the tracks has buried much of the exposure and precluded structural measurements. The vein is mineralized with pyrite and chalcopyrite and had previously returned values up to 0.169 ounce Au per ton (*ibid*) and 0.43 ounce Au per ton (Lavigne and Scott 1995). Several trenches are located, presumably along strike, a short distance to the southwest.

An oxide-facies, banded iron formation, mapped by Fumerton (1985) was relocated along a ridge, north of the railway tracks. Thinly bedded magnetite-wacke iron formation strikes west-northwest, toward the Hidden Treasure shafts. It is flanked to the north by (reworked?) tuff and sandstone.

Strongly foliated, quartz $\pm$ feldspar-phyric, sericitic phyllites are well-exposed along the north side of the tracks to the west. The lack of discernable fragments suggests that these phyllites may represent sheared porphyritic sills or dykes. They contain iron carbonate and rare green mica and display west-plunging ($\sim 45^\circ$) mineral lineations.

The majority of the old workings (ca. 1899; Bow (1901)) are located on the ridge, approximately 125 m north of the tracks. The eastern (main) shaft (UTM 15N (NAD27) 562619 easting / 5399615 northing) is 19 m deep, with a 5 m crosscut (*ibid*). Stripping and channel sampling by Noranda Exploration Company Limited in 1988 (Assessment Files, Kenora District, Kenora) has exposed a 2 m wide, west-northwest-trending quartz vein hosted by sheared metavolcanic rocks and banded iron formation. Stripped areas were also excavated by Noranda in 1988 between the shaft and a second, shallower shaft 400 m to the west-northwest (*ibid*). Values up to 12.34 g/t Au were reported by Noranda (Resident Geologist's Files, Kenora District, Kenora).

The quartz vein is predominantly "bull-white", and contains xenoliths of pink (*a.k.a.* "salmon-coloured") to grey-green sericite schist with rare pyrite. Tight to isoclinal folds, with axes trending 110° and dipping steeply to the north, are developed in the sheared iron formation. Closer to the quartz vein, bands of iron formation have been dismembered by the shearing; intrafolial folded magnetite fragments are isolated in (less competent?) sericite schist. Similar dismemberment of the magnetite bands was also noted approximately 50 m south of the shaft area, indicating that this west-northwest-trending shear zone is quite wide, likely persisting all the way to the railway (at least 125 m).

Old cross trenches and pits (UTM Zone 15N (NAD27) 562676 easting / 5399567 northing; 562688 easting / 5399567 northing, respectively) were located approximately 100 m southeast of the shaft, south of the vein-bearing

structure, but still within the shear zone. Podiform quartz-carbonate pods with pyrite are hosted by sericite-iron carbonate $\pm$ green mica schist.

Sample Number	Description	Gold (oz/ton)
02 BHT-01	Fe-carbonatized, chloritized zone in intermediate pyroclastic rocks; east of Mills Creek	N.D.
02 BHT-02	"Crack-seal"-textured quartz vein ("Blowout Vein") in pit; west of Mills Creek	0.22
02 BHT-03	Sericite-chlorite schist, host to "Blowout Vein"; west of Mills Creek	N.D.
02 BHT-04	Magnetite banded iron formation, west of Mills Creek	N.D.
02 BHT-05	Sericite-chlorite schist in old cross-trench; east of eastern shaft	189 ppb
02 BHT-06	Sericite-chlorite schist in old pit; east of eastern shaft	N.D.
02 BHT-07	Quartz vein in sericite schist / shear zone; eastern shaft stripped area	0.05
02 BHT-08	Fe-carbonatized, sericite-chlorite schist; eastern shaft stripped area	0.02
02 BHT-09	Quartz vein; edge of eastern shaft	N.D.

It is apparent that previous geological reports did not fully describe and document the nature and extent of the regional shear zones in the vicinity of Calm Lake. The main deformation zone which is situated along the railway, striking approximately east-southeast, correlates with the Quetico Fault of Poulsen (1983, 1984) near the point at which it bifurcates into the southwesterly trending Seine River splay fault. Conversely, Fumerton (1985) labelled these same two structures the Turtle Fault (east-southeast-trending) and Quetico Fault (southwest-trending), respectively.

In order to develop an exploration strategy for lode gold, an assessment of both barren and gold-bearing structures must be carried out, drawing upon structural models such as those presented by Poulsen (1983, 1984) and Colvine *et al.* (1988). Preliminary observations suggest that gold-bearing veins in the Calm Lake area are related either to replacement and/or extension within a major deformation zone.

The quartz-carbonate veins in the vicinity of the eastern shaft and old trenches are likely replacement veins within the main ductile deformation zone (Quetico Fault) and largely parallel to its pervasive east-southeast-trending foliation. The veins may be restricted to zones of simple shear where increased permeability results from the development of C foliation (*i.e.* a spaced foliation developed as planes of shear parallel to the walls of shear zone) or C' shear banding (*i.e.* a spaced foliation which transects C foliation in highly strained rocks) (Colvine *et al.* 1988; Roberts 1987). By contrast, the crack-seal textured "Blowout Vein" is perhaps related to tension- or shear-induced extension, open-space filling and fluid overpressuring. If the Blowout Vein does happen to be east-northeast-trending, it may represent a dilatant zone hosted by a Riedel (*a.k.a.* R-type) shear or oblique shear at a low angle to, and within, the same, main deformation zone (*ibid*). The moderately west-dipping mineral lineations may indicate some component of dip-slip, as well as strike-slip (dextral transcurrent) motion on the main structure. Ore shoots may be localized at the intersections of structures (with the same orientation) and the main deformation zone. Bear in mind that auriferous veins to the west in the Mine Centre - Fort Frances area (Poulsen 1983, 1984) and to the east in the Atikokan area (Schnieders and Dutka 1985) also occur in ductile shear zones and in dilatant zones in regionally developed cleavage. These gold-bearing structures are kinematically related to large, transcurrent faults in the area.

Fire Mountain Property

The Fire Mountain property is located approximately 20 km east of Terrace Bay, east of the Steel River, on the north side of Highway 17. It is adjacent to the Black Fox Lake property described by Schnieders *et al.* (2000). Although the area had long been considered prospective ground for gold mineralization because of deformation, alteration and

(base metal-rich) sulphide mineral occurrences, few gold occurrences had been discovered. Silicified, carbonatized, green-mica-rich zones were discovered northeast of Black Fox Lake in 1994 (Schnieders and Smyk 1995). Further prospecting generated numbers up to 2.5 g/t Au at Black Fox Lake (*ibid*). Prospecting and exploration in the area had also been spurred by exploration work and base metal discoveries on the nearby Spider Lake property (Schnieders *et al.* 1999).

The basis of much of the local interest was a newspaper article in *The Daily Journal* (Fort William), dated December 5, 1896, which described work that was being undertaken on a property then known as Fire Mountain. The rediscovered article and its property description, first publicized by Patterson *et al.* (1987) and again by Schnieders *et al.* (1992), cited gold values up to 2.35 ounces per ton. The original location of these workings has never been found and verified.

More recent work resulted from the discovery of visible gold-bearing float boulders in a stream bed just north of Highway 17 in October, 2001, by prospectors Russel Renner and Rudy Wahl. Values of up to 189 g/t Au and 40 g/t Ag were returned from these samples (R. Renner and R. Wahl, Prospectors, personal communication, 2001); locating their bedrock source became the focus of the current prospecting program.

The property is underlain by deformed and altered supracrustal and intrusive rocks of the Schreiber-Hemlo greenstone belt, as mapped by Walker (1967). A series of parallel, east-northeast-trending, fault-bounded panels have been suggested by mapping. Black Fox Lake follows a prominent, east-northeast-trending structure. Fine-grained phyllites were likely derived from wackes and siltstones, as well as enclaves of mafic metavolcanic rocks (Walker 1967).

The majority of boulders in the stream bed where the initial gold discovery was made (UTM Zone 16 (NAD27): 513605 easting, 5404418 northing) are angular, iron carbonate-altered metasedimentary rocks with quartz-tourmaline veinlets. Just north along the stream bed (513500E, 5404562N), a 3 to 4m wide altered zone contains abundant green mica, iron carbonate, pyrite and locally chalcopyrite. Despite the intensity of alteration and sulphidization, no significant gold assays have been returned from this zone.

The main zone of alteration and mineralization is exposed in isolated outcrops and along the southern edge of a prominent, east-northeast-trending ridge. The talus slope below the ridge contains numerous iron carbonate- and sericite-altered boulders. On top of the ridge, near the northern edge of known mineralization, foliated (060/90), decussate-textured chloritic, talcose mafic rocks are suggestive of a komatiitic basalt protolith. Anastomosing quartz-carbonate ± pyrite veins occur in sheared mafic rocks (513711 easting, 5405337 northing). Along the cliff edge, similar veins occur in intensely iron carbonatized, sericitic phyllites (513710 easting, 5405329 northing) and continue to the east (513741 easting, 5405305 northing). A grab sample of an alteration-generated "pseudo-breccia", in which domains of relatively less-altered rock occur in a more intensely altered matrix, returned 0.08 ounce gold per ton (Resident Geologist's Files, Thunder Bay South District, Thunder Bay). The eastern and western extents of the zone as determined by initial prospecting were noted at 513814 easting, 5405305 northing and 513632 easting, 5405270 northing, indicating a strike length of at least 180m. North of the zone, the intensity of foliation drops significantly and original textures are evident. Approximately half of the 50 grab samples collected by prospectors in 2002 returned from 160 to 800 ppb Au (R. Renner, Prospector, personal communication, 2002). Additional reconnaissance prospecting returned 500 ppb near the powerline, 1 km to the northeast, as well as values over 2.0 g/t Au near the Prairie River (*ibid*).

On the basis of the aforementioned prospecting, property visits and assay results, the property was acquired by RJK Explorations Ltd. in July, 2002 (RJK Explorations Ltd., News Release, July 24, 2002). Follow-up reconnaissance prospecting stated that the zone had been traced intermittently for approximately 400 m, had an apparent width of approximately 50 to 60 m and remained open along strike in both directions (*ibid*). RJK Explorations Ltd. subsequently optioned the adjacent Black Fox Lake property (Schnieders *et al.* 2000) to the west (RJK Explorations Ltd., News Release, September 11, 2002). Both properties form part of the Fire Mountain Project. Additional sampling identified four additional anomalous areas over an area 1.5 km by 2.0 km, with individual sites returning highest results between 248 ppb Au and 1890 ppb Au. All of these mineralized and altered zones lie within what

could be a newly recognized, east-northeast-striking, major deformation-alteration zone which extends for 10 km along strike and over widths of up to 2500 m on the Fire Mountain property (*ibid*).

Favourable comparisons to major gold-bearing structures such as the Destor-Porcupine Fault were first made in the Steel River area by Schnieders and Smyk (1995). They continue to be made in determining an exploration strategy. Among the features which have been identified are:

- (1) the general map shape of many rock units as shear-bounded lozenges;
- (2) the extensive alteration of wacke to micaceous phyllites and schists, having the overall form of a mega-wrench or regional shear zone (*i.e.* the Jackfish-Middleton shear zone described by Williams (1989);
- (3) the local alteration of gabbro, diorite and mafic metavolcanic rocks to chlorite-actinolite schist and/or to green mica-iron carbonate-bearing units;
- (4) abundant carbonate alteration within clastic sedimentary rocks as well as the gabbro, diorite and mafic metavolcanic rocks;
- (5) local units of iron formation, with ribbon quartz with sulphides and rusty-weathering, graphitic schist; and
- (6) numerous airborne electromagnetic anomalies (Ontario Geological Survey 2000).

(RJK Explorations Ltd., News Release, September 11, 2002)

Drilling of the main shear zone was conducted in early 2003 (Resident Geologist's Files, Thunder Bay South District, Thunder Bay). Stripping, humus and lithogeochemical sampling and prospecting has also been suggested to help establish the orientation and extent of the known altered and mineralized zones, uncover parallel or splay structures and hopefully determine the source of the high-grade float boulders. It is possible the mineralized shoots may occur in otherwise weakly mineralized or barren, altered shear zones.

SunGold Property

The SunGold property was staked by Russell Kwiatkowski and Ed Kukkee and optioned in the fall of 2002 by Freewest Resources Canada Inc. (News Release, November 18, 2002). The property is located in the western portion of the Shebandowan greenstone belt, in the Powell Lake area. The property geology consists of intercalated mafic intrusive rocks, mafic to felsic metavolcanic rocks and iron formation, which have been intruded by quartz-feldspar porphyry sills, and granite, syenite and albite dikes (Harris 1970). The Knife Lake Fault is a major northeast-trending structure located approximately 1 km to the southeast.

Gold mineralization is associated with quartz veins and strained and sulphide-bearing, quartz-feldspar porphyry. Quartz veins and deformed porphyry have intruded felsic metavolcanic rocks and iron formation. At the McGinnis Occurrence (UTM Zone 15 (NAD 27): 660605 easting / 5368015 northing), a zone of strained metavolcanic rocks and porphyry is manifested as a mylonite zone, striking 076°. Structural interpretation supports the development of a right-lateral shear zone. There is evidence of potassic and hematitic alteration and pyritization. Assays up to 450 ppb Au, have been reported by R. Kwiatkowski (Prospector, personal communication, 2002).

Prospecting in the fall of 2001 led to the discovery of the SunGold occurrence (UTM Zone 15 (NAD27) 660225 easting / 5368233 northing) where quartz veins are hosted by sheared and altered quartz-feldspar porphyry. Chalcopyrite, pyrite and pyrrhotite occur as seams along shear planes; potassic, sericitic and hematitic alteration were noted. The zone was followed along strike for more than 300 m and was up to 5 m wide in several locations. Grab samples of the quartz vein material collected by Resident Geologist's staff assayed up to 0.17 ounce gold per ton, and a sample of the altered and deformed porphyry assayed 0.08 ounce gold per ton (Resident Geologist's Files, Thunder Bay South District, Thunder Bay).

Additional prospecting in the fall of 2002, approximately 150 m to the southeast of the SunGold occurrence, discovered higher-grade mineralization in a similar setting (R. Kwiatkowski, Prospector, personal communication, 2002). Grab samples collected by Freewest Resources Canada Inc. assayed up to 2.34 ounces gold per ton (News Release, November 18, 2002), and is supported by preliminary prospecting in 2002 by the Resident Geologist's program staff. Additional sheared and altered quartz porphyries and south-southwest-trending splay faults were

identified by R. Kwiatkowski. Further to the southwest on the adjoining Red Fox property held by J. Hackl, up to 5 g/t Au and 1.5% Cu has been recently discovered in grab samples of quartz-feldspar porphyry as well as altered granite (J. Hackl, Prospector, personal communication, 2002). Further prospecting and exploration throughout the area is warranted.

Sunshine Occurrence – Chub Lake Area

Prospector Karl Bjorkman discovered the Sunshine gold occurrence during the summer of 2002, 25 km west of Atikokan, between Flora Lake and Garrett Lake (UTM Zone 15 (NAD27): 577364 easting / 5402730 northing) while following up on Ontario Geological Survey mapping and recommendations. New logging roads have enhanced access into the area. Quartz-carbonate veins are associated with north-northwest-trending to north-northeast-trending structures, commonly at the contact between altered quartz-porphyry and mafic metavolcanic rocks, which include altered carbonate-chromian mica (*a.k.a.* green mica) schists. Carbonatized, saussuritized and sulphidized porphyry with a quartz vein stockwork, returned up to 2.42 g/t Au (D. Hoy, Freewest Resources Canada Inc., personal communication, 2002). A narrow, extensional, sulphide-bearing quartz vein strikes 110° and appears to be associated with folded metavolcanic rocks (fold axis at 042/52 southeast). A grab sample returned 68.04 g/t Au (K. Bjorkman, Prospector, personal communication, 2002). Grab samples collected by Resident Geologist staff returned up to 0.66 ounce gold per ton (Resident Geologist's Files, Thunder Bay South District, Thunder Bay).

Similar porphyries and their altered and deformed equivalents (carbonate-rich, green mica schists) were observed approximately 8 km to the southeast on the Chub Lake Road. The Katarina Zone and Black Vein occurrence were discovered in the late 1980's by Exploration Société Minière Mimiska Inc. Grab samples collected by staff of the Resident Geologist's office returned up to 6.8 g/t Au from the Katarina (Fuchsite) Zone (UTM Zone 15 (NAD27): 584913 easting / 5401641 northing), and up to 1.01 ounces gold per ton from the Black quartz vein (UTM Zone 15 (NAD27): 584659 easting / 5401769 northing) and 0.24 ounce gold per ton from altered, deformed porphyry, which hosts the quartz vein (Resident Geologist's Files, Thunder Bay South District, Thunder Bay). Exploration Société Minière Mimiska Inc. reported grab sample assays of up to 134.74 g/t Au from the Black vein, and up to 25.83 g/t Au from the Katarina Zone (*ibid*). Four short diamond drill holes were drilled under the Black vein, with the best intersection being 7.71 g/t Au across 0.80 m (*ibid*). Three drill holes under the Katarina (Fuchsite) zone intersected up to 6.23 m of fuchsite-ankerite-quartz schist; the best assay was 1.79 g/t Au across 1.25 m (Resident Geologist's Files, Thunder Bay South District, Thunder Bay). Recent prospecting by K. Bjorkman has extended the strike length of the Katarina Zone to more than 400 m on surface. Further prospecting and exploration is warranted.

Central Canada Property

The Central Canada property, also known as the J.J. Walsh, Jackson Syndicate, Rosa Blande and Anjamin property, is located 30 km east of Atikokan, north of Sapawe Lake in Hutchison Township. The property is held by Ken Fenwick, Don Leishman and Karl Bjorkman. The general geology consists of basalt, chlorite schist and gabbro which have been intruded by felsic intrusive rocks, including quartz porphyry and aplite. The area is situated less than 1 km north of the Quetico Fault, a major east-trending regional structure.

A shaft was sunk to 130 feet (39 m) in the late 1920's and early 1930's (Schnieders and Dutka 1985). It was located and sampled by staff of the Resident Geologist's program in 2002 (UTM Zone 15 (NAD27): 622649 easting / 5404553 northing). Several parallel quartz veins, striking 060° to 066° and dipping 85° south to vertically, were observed. The quartz veins appear to be extensional, and display drag folding within a major deformation zone. One measured fold axis strikes 240° and contains a mineral lineation (240/50 southwest). Grab samples of vein material ranging up to 0.6 m in width were collected by the author, and returned up to 0.44 ounce gold per ton (Resident Geologist's Files, Thunder Bay South District, Thunder Bay). The quartz veins display crack-seal to ribbon textures, with abundant tourmaline, pyrite, chalcopyrite and arsenopyrite. In one location a quartz-tourmaline stockwork hosted by a sheared and altered quartz porphyry returned 0.13 ounce gold per ton. Grab sampling of quartz veins to the west and south of the shaft by the property owners in 2001, returned assays of up to 16.55 g/t Au and 15.05 g/t Au respectively (K. Fenwick, Prospector, personal communication, 2002). A sample of rusty concentrate from the mill area assayed 48.6 g/t Au (*ibid*). Sampling by Cameco Gold Inc. in 2002 returned 22.8 g/t Au from a vein on strike with the shaft (UTM Zone 15 (NAD27): 622662 easting / 5404513 northing) (*ibid*).

Gold mineralization is hosted by quartz-tourmaline veins, within sheared, deformed, carbonatized and sericitized quartz porphyry. Historical reports indicated up to 7 parallel and extensional quartz vein sets over a strike length of 1000 m and across a width of 400 m (Resident Geologist's Files, Thunder Bay South District, Thunder Bay). Very little stripping has been done on the property, and additional prospecting is warranted, especially along and across strike of the veins. Larger bodies of quartz- and quartz-feldspar porphyry are considered excellent targets for gold mineralization. Porphyritic felsic intrusive dikes and plugs have been deformed and altered within a major deformation zone. Exploration programs should consider using induced polarization (I.P.) geophysical surveys to delineate disseminated sulphide mineralized zones which locally contain gold. Radiometric surveys will help to outline potassium enrichment zones such as sericitized porphyry, for example.

A diamond drill program by Anjamine Mines Ltd. in 1965, returned 44 g/t Au across 7 feet (Resident Geologist's Files, Thunder Bay South District, Thunder Bay). Sheared porphyry returned 17 g/t Au. Drilling by Interquest Resource Corp. in 1985 intersected 30.0 g/t Au across 3.8 feet. Any drilling programs should involve a detailed structural interpretation, as the gold mineralization may be controlled by plunging or raking pods and lenses. West of the Walsh property, on E.S. 50, additional porphyry bodies and quartz veins were mapped by Hawley (1930). Further prospecting is warranted.

Cunniah Lake Property

Prospectors Michael and Steve Stares, along with James Bond (Cunniah Lake Resources) carried out prospecting, stripping and sampling on the Cunniah Lake (Q-9) property in 2002. The property is situated approximately 40 km southwest of Kashabowie, in the Saganagons portion of the Shebandowan greenstone belt. In December of 1998, M. and S. Stares discovered a high-grade, visible gold- and petzite-bearing quartz vein on the west shore of Cunniah Lake (UTM Zone 15 (NAD27): 5353602 northing / 663367 easting) named the Lakeshore High-Grade Zone. Selected grab samples assayed as high as 54.8 ounces Au per ton and up to 537.4 ounces silver per ton (Band-Ore Resources Ltd., News Release, January 18, 1999). In February, 1999, Band-Ore Resources Ltd. completed 12 short diamond drill holes totaling 744 m. The best intersection assayed 25.5 g/t Au and 92 g/t Ag over 1.1 m on the high-grade vein (News Release, February 25, 1999).

A prospecting and sampling program was initiated on the property in the summer of 2002. In addition to the aforementioned Lakeshore High Grade Zone, several new occurrences were discovered including the North Star (UTM Zone 15 (NAD27): 662344 easting / 5354519 northing), Antares (UTM Zone 15 (NAD27): 663293 easting / 5354433 northing), East Star, Central Star and South Star. Initial assays of selected grab samples indicated up to 37 g/t Au in quartz vein and altered porphyry from the North Star Zone, 2.1 g/t Au in altered quartz porphyry from the Antares Zone, 21.4 g/t Au from the East Star Zone, and up to 5 g/t Au from the Central Star Zone (J. Bond, personal communication, 2002). Previous channel sampling on the Beaker Zone in 1994 by Hemlo Gold Mines Inc. returned 3.47 g/t Au over 4 m (Resident Geologist's Files, Thunder Bay South District, Thunder Bay).

The North Star Zone consists of quartz veins and quartz vein stockworks hosted by sheared and altered quartz porphyry that has intruded mafic metavolcanic rocks and iron formation. Quartz-carbonate veins up to 4 m wide strike 076° degrees. The veins occur at the contact of the quartz porphyry dikes and intrusive bodies. The quartz veins contain pyrite, chalcopyrite, magnetite, malachite, azurite and minor galena. The Magnetite Vein strikes 100° and is up to 1 m wide. The contact between the quartz porphyry and the metavolcanic host also strikes 100°. The contacts display shearing, carbonatization and sericitization (potassic alteration). Multiple shear zones and vein sets occur at the North Star and North Star East (UTM Zone 15 (NAD27): 662520 easting / 5354608 northing) occurrences. Composite quartz vein and quartz stockwork zones in altered porphyry up to 6 m wide are exposed. Mineral lineations trend 270° and plunge 70° west. The veins have a rod-like or lenticular appearance. Grab samples collected by Resident Geologist's staff and assayed at Accurassay Laboratories assayed 3.4 g/t Au and 0.49% Cu from the North Star vein; 1.2 g/t Au from the North Star East vein; 1.0 g/t Au and 0.72% Cu from the Magnetite Vein (Resident Geologist's Files, Thunder Bay South District, Thunder Bay).

At the Antares Zone, sheared, carbonatized and sericitized quartz porphyry is exposed over a strike length of 200 m. Minor quartz veins appear in a conjugate set within a saussuritized porphyry. Two selected grab samples taken by Resident Geologist's staff returned less than 5 ppb Au (*ibid*).

The 2002 prospecting program identified several new gold-mineralized areas. Additional stripping, further prospecting and sampling in the area, focusing on porphyries and their contact zones, is warranted.

Laurie Township (Matawin Gold Belt)

Laurie Township is situated southeast of the hamlet of Shebandowan and approximately 56 km northwest of Thunder Bay. The UTM coordinates of the central portion of Laurie Township are UTM Zone 16 (NAD 27) 281400 easting, 5380600 northing. It was mapped most recently by Carter (1987).

Mineral exploration in the area during the 1950's targeted the laterally extensive Matawin iron formation. Subsequent exploration recognized the presence of gold mineralization (Carter 1990). Early gold exploration focussed on an area near Gold Creek south of an unnamed lake located at UTM coordinates UTM Zone 15 (NAD 27) 713293 easting, 5383617 northing. Recent exploration by INCO uncovered additional extensive gold mineralization throughout the area (Resident Geologist's Files, Thunder Bay South District, Thunder Bay). Gold-mineralized zones discovered by INCO have been extended to the southeast (Joe Hackl and Joey Hackl, Prospectors, personal communication, 2002).

Recent logging in Laurie Township has created access to a once remote area. The trend of gold-mineralized zones (established by Joe Hackl) on the Moose Calf property has been extended to the east-southeast almost to the Matawin River. Prospecting in 2002 led to the discovery of several zones which returned up to 5.79 g/t Au in grab samples (J. Hackl, Prospector, personal communication, 2002). Foliated Timiskaming clastic metasedimentary(?) rocks in the vicinity of the road (UTM Zone 15 (NAD27) 5381708 northing, 282854 easting) display extensive iron carbonatization and are locally riddled with quartz-carbonate stockwork veins. There are also gold occurrences associated with quartz veins in the Matawin iron formation where the Matawin River crosses the iron formation. These veins returned values up to 18.4 g/t during prospecting activity carried out in 2001 by P. Kukkee and T. Yahn (Assessment Files, Thunder Bay South District, Thunder Bay).

The nature of the gold mineralization appears to be similar at almost every showing. It is manifested as pervasive carbonate alteration, silicification, quartz veins, green chromian mica, pyrite and associated gold. Most of the occurrences are located on the northern flank of the iron formation in Timiskaming-type metasedimentary rocks. Aeromagnetic data (Ontario Geological Survey 1991) show that INCO's Gold Creek trenches appear to lie within a distinct break in the Matawin iron formation, suggesting that either the iron formation is absent or that primary magnetite has been destroyed by later hydrothermal processes (e.g. sulphidization). Ultramafic flows, syenite and lamprophyre dykes are also present (Resident Geologist's Files, Thunder Bay South District, Thunder Bay).

It is possible that all these occurrences are related to a major fault zone or rift zone, which at the time of its formation was volcanically active. A major linear trend of gold occurrences may be ascribed to hydrothermally active, volcanic and fumarolic activity at or near the unconformity between the Keewatin rocks and the Timiskaming rocks.

Mapping by Carter (1987) and others have delineated this unconformity in the field, but further investigation is required to ground-truth mapping and to provide a more detailed framework for gold mineralization in the area. Previous mapping was hindered due to the lack of roads in the area.

Plotting the occurrences on top of a regional aeromagnetic map (Ontario Geological Survey 1991) further confirms the spatial relationship between the gold mineralization and the Matawin iron formation. This also immediately suggests further areas to explore. These include the extension of the iron range into Horne Township to the east and to the southern flank of the north limb of the Matawin iron formation. A search of the claim maps should reveal open ground in high-potential areas in the Matawin Gold Belt.

Location 3 Amethyst Occurrences, McTavish Township

In 2002, prospector C. Anderson staked a number of amethyst vein occurrences east of his Ancliff Station deposit in Lot 3 (a.k.a. Location 3), northeastern McTavish Township. Despite the fact that the majority of the showings are marked by old workings, little recorded exploration work exists. Noranda Exploration Company Ltd. explored the

area for Mississippi Valley-type lead-zinc deposits in 1983. Prospector T. Twomey investigated the local amethyst potential between 1988 and 1990 (Assessment Files, NTS 52A10NE, Thunder Bay South Resident Geologist's District, Thunder Bay). It is probable that the old workings are related to lead-zinc exploration that took place in the area in the 1860's and 1870's that culminated in the development of the nearby Enterprise, Bain, Arctic and Caribou mines (Tanton 1931).

The local geology has most recently been described by McIlwaine (1971). Current prospecting activity has been focused in Lot 3 on a prominent hill consisting of an erosion-resistant, Archean granite inlier around which gently dipping Mesoproterozoic Sibley Group sedimentary rocks are unconformably draped. The majority of the lead-zinc-bearing veins, which may also carry amethyst as a major gangue mineral, occur at or near this unconformity, localized by faults and fractures systems in either basement granite or overlying clastic sedimentary rocks (*cf.* Franklin and Mitchell 1977).

Shallow test pits have been developed in chalcocite-bearing, drusy quartz veins that occur at the unconformity on the west side of the hill (UTM Zone 16 (NAD27), 386000 easting / 5396155 northing). Granite is overlain by a thin veneer of domical, grey-black, laminated, stromatolitic chert and buff siltstone.

Although there is no vein currently exposed at the South Shaft (UTM Zone 16 (NAD27), 386120 easting / 5396018 northing), drusy white quartz is evident in buff-coloured Sibley siltstone dump pieces. A larger shaft, perhaps (a minimum of) 10 m deep occurs a short distance away (UTM Zone 16 (NAD27), 386145 easting / 5396080 northing). It appears that it is sunk in an east-trending fault or fracture zone that separates the granite ridge on the north from the low-lying Sibley siltstones to the south. Quartz vein and vein breccia pieces, some containing chalcopyrite and/or amethyst, occur in the dump. Some diabase boulders are also evident. The fracture zone continues to the east, manifested as a well-defined gully between granite ridges. Small quartz veinlets, oriented parallel to the fracture zone in the granitic wall rock, locally contain siltstone fragments. Another shaft was sunk just off the eastern end of the east-trending granite ridge in (altered) buff-coloured to brick-red siltstone. East-trending, parallel to anastomosing, crustiform and drusy quartz $\pm$ amethyst veinlets extend over a width of approximately 1.5 m. Individual veins range in size from ≤ 1 cm to 10 cm vugs and vein breccia. Minor galena and chalcopyrite were noted. Amethyst veins with similar trends are exposed on the northern edge of the granite ridge ((UTM Zone 16 (NAD27), 386430 easting / 5396120 northing). It is important to note that none of the three shafts appear on McIlwaine's (1971) geology map, and that other vein occurrences and workings undoubtedly exist in the area.

Although prospecting activity is restricted to topographic "highs" that are predominantly underlain by granite (*i.e.* low areas are underlain by Sibley Group rocks), exposures suggest that the current erosional surface is close to the Archean-Proterozoic unconformity. This unconformity is the prime location of amethyst-bearing veins. Major faults and fracture zones that intersect(ed) the unconformity and extend into the basement should be followed along strike. Veins are likely to occur within or adjacent to these structures.

RECOMMENDATIONS FOR EXPLORATION

Gold Mineralization in the Atikokan Area

The Atikokan area, one of Ontario's earliest gold camps, was known in the late 1800's as the Upper Seine District. Combined with the Mine Centre area, limited recorded production of more than 22 000 ounces of gold was realized from approximately 15 producers (Schnieders 1983). In addition there are more than 50 other gold occurrences within a 50 km radius of Atikokan (*ibid*). The vast majority of occurrences are hosted by supracrustal rocks in a number of small, interconnected greenstone belts (Calm Lake, Finlayson Lake, Lac des Mille Lacs and Lumby Lake) and within the Marmion Lake tonalitic batholith, near the southern margin of the Wabigoon Subprovince (Blackburn et al. 1991; Wilkinson 1982). The southern subprovincial boundary is locally defined by the Quetico Fault, a regional, dextral, transcurrent fault zone; metasedimentary and related plutonic rocks of the Quetico Subprovince occur on the south side of the fault.

Gold mineralization is associated with quartz $\pm$ carbonate veins and stockworks, as well as deformed and altered felsic intrusive rocks. There is a strong association with regional faults, branching splay faults and brittle-ductile deformation zones. Gold mineralization in the Marmion Lake batholith is associated with northeast-trending structures and its contacts with greenstone belt rocks (Lavigne and Scott 1995a, 1996b). Past workers have described many gold occurrences hosted by deformed and altered metavolcanic rocks and associated with high-level intrusive rocks such as quartz-feldspar porphyry, aplite and felsite. Typical alteration assemblages include sericite, albite, chlorite, iron carbonate, saussurite, epidote, tourmaline and green mica. Pyrite, chalcopyrite, galena and arsenopyrite, as well as other, less common sulphides, are associated with auriferous quartz-carbonate veins (Schnieders 1983; Wilkinson 1982).

Exploration by companies such as Pentland Firth Ventures Ltd. on the Hammond Reef property in the late 1990's confirmed the potential of large-scale structures in the Atikokan area. The company generated an in-situ resource of approximately 2.56 million ounces (85 mt @ 0.93 g/t Au) from two zones up to 2.4 km long by 500 m wide and 200 m deep within the Marmion Lake batholith (*Third Quarter Report, Pentland Firth Ventures Ltd., 1997*). The mineralized zone consists of a stockwork of quartz-carbonate veins, hosted by altered, massive to gneissic tonalite, and altered, mafic dykes (Schnieders *et al.* 1998). Mapping by the Ontario Geological Survey (Lavigne and Scott 1995a, 1996b; Stone and Pufahl 1995; Stone *et al.* 1995) delineated the 6 km-wide, 40 km-long Sawbill Bay deformation zone at the western margin of the batholith. The majority of the more than 20 known gold showings within the Marmion Lake batholith occur within or on the edge of an interconnected system of large-scale, anastomosing faults, shear zones and mylonite zones (Lavigne and Scott 1996b).

The southern contact zone of the Dashwa Lake batholith is also prospective. Diamond drilling in 1988 in the Zephyr Zone on the Harold Lake property by Société Minière Mimiska Inc. intersected 34 feet (10.5m) of 0.18 ounce gold per ton, hosted by folded and boudinaged quartz-carbonate veins in highly sheared and carbonatized metavolcanic rocks. Past work by prospectors and the Ontario Geological Survey have led to the discovery of spectacular high-grade gold occurrences at the Bergman and Fern-Elizabeth properties (Schnieders and Dutka 1985). Exploration Société Minière Mimiska Inc. outlined a resource of 244 083 tonnes grading 4.81 g/t Au (high-grade cut to 34 g/t Au) on the neighbouring Fern-Elizabeth property. Selected drilling results for the Fern-Elizabeth property are tabulated below:

Hole Number	From (m)	To (m)	Width (m)	Au (g/t)
ME-88-98	71.10	73.80	2.7	24.43
ME-88-113	16.62	17.24	0.62	54.18
ME-88-129	69.63	70.83	1.2	2.38
ME-88-129	85.37	86.88	1.51	1.68
ME-88-129	92.53	97.54	5.01	4.74
ME-88-129	102.20	104.10	1.9	3.08
ME-88-129	126.35	128.25	1.9	14.38

(Resident Geologist's Files, Thunder Bay South District, Thunder Bay)

Gold mineralization on the Fern-Elizabeth property has been traced over a surface strike length of more than 1.5 km, and the deepest drilling to date is 240 m (vertical) (*ibid*).

Prospector Karl Bjorkman discovered the Sunshine gold occurrence during the summer of 2002, 25 km west of Atikokan, while following up on Ontario Geological Survey mapping and recommendations. Recent logging roads have enhanced access into the area. Quartz-carbonate veins are associated with north-northwest- and north-northeast-trending structures, commonly at the contact between altered quartz porphyry, and mafic metavolcanic rocks, locally altered to carbonate and chromian muscovite- (*a.k.a.* green mica) bearing schists. Carbonatized, saussuritized and sulphidized porphyry with quartz stockworks assayed up to 2.42 g/t Au. A narrow, extensional, sulphide-bearing quartz vein strikes 110° and appears to be associated with folded metavolcanic rocks. A grab sample assayed up to 68.04 g/t Au (K. Bjorkman, Prospector, personal communication, 2002; Resident Geologist's Files, Thunder Bay South District, Thunder Bay).

West of Atikokan, between the Sunshine and Fern-Elizabeth properties, there are more than 10 known gold occurrences along a 15 km section of folded, sheared and faulted metavolcanic rocks. Farther west, in the vicinity of Calm Lake, gold is associated with large-scale, brittle-ductile shear zones (e.g. Hidden Treasure, Mayflower properties; see *Property Examinations, this report*). The Atikokan area has numerous grass roots gold targets that require (re-)investigation. Exploration should include photo lineament and structural studies, prospecting, sampling, stripping, geophysical and geochemical surveys and diamond drilling. As the old adage says, "Drill for structure and drift for grade!"

Gold Mineralization in the Schreiber Area

The Schreiber area has experienced sporadic prospecting and exploration for gold, as well as limited, small-scale production over the last 90 years. Only a handful of the more than 30 gold occurrences (Schnieders *et al.* 1996a) have ever been drilled. Few integrated, comprehensive, "modern" exploration programs have ever been undertaken.

The area and its gold potential have been described and recommended numerous times by the staff of the Resident Geologist's Program. The following, composite description is gleaned from a variety of related sources, including Patterson *et al.* (1987), Schnieders and Smyk (1990, 1994, 1995, 1997), and Schnieders *et al.* (1991, 1992, 1993, 1996b).

The vast majority of the known occurrences are hosted by discrete structures, typically in composite quartz $\pm$ carbonate veins. Vein orientations are generally sub-parallel to faults and joints in host rocks; *en échelon* and conjugate sets are common. Veins are commonly localized along contacts and discontinuities. Host rocks show little evidence of ductile deformation.

There is a strong spatial association between gold occurrences and felsic intrusive rocks (e.g. quartz- and quartz-feldspar porphyry, syenite, trondhjemite), as well as lamprophyre dykes. Many gold occurrences occur in supracrustal rocks near or at the margin of the Terrace Bay batholith (*cf.* Marmont 1984). Local hornblende-phyric, syenitic rocks bear similarities to "Timiskaming-type" rocks in the Matawin gold belt (Shebandowan greenstone belt) and Kirkland Lake.

It is possible that veins may occur in large arrays or as brecciated, stockwork zones with abundant microfracturing. Such zones, and the intervening, altered host rocks, may represent larger-tonnage, lower-grade targets (e.g. Afric Zone: 2 million tonnes grading 2.2 g/t Au; World Wide Website, <http://www.intl-taurus.com>). The two most important exploration criteria appear to be: (1) evidence of hydrothermal fracturing and alteration (e.g. sericite, chlorite, quartz, pyrite), and (2) rocks related to felsic magmatism.

A successful exploration program should combine aspects of prospecting, geological mapping, soil and lithogeochemical sampling, stripping, induced polarization and other geophysical surveys and diamond drilling. Recent work by the Ontario Geological Survey in the Schreiber area includes a high-density, lake sediment and water geochemistry survey (Dyer 1997; Ontario Geological Survey 2000a), an airborne geophysical (Mag-EM) survey (Ontario Geological Survey 2000b), and a Quaternary geology mapping and overburden sampling program (Morris *et al.* 2002).

Matawin Gold Belt

The term "Matawin Gold Belt", first coined by Lavigne and Scott (1994), defined an area in the Shebandowan greenstone belt, south of Lower Shebandowan Lake, to the north of the City of Thunder Bay. The exploration history of the belt is outlined in Lavigne and Scott (1994). Specific areas of the Shabaqua-Shebandowan Lakes area, including Duckworth, Blackwell, Laurie, Goldie and Horne townships and the Dawson Road Lots, were earlier recommended as excellent gold targets by Schnieders and Dutka (1985), Lavigne and Scott (1994, 1995b, 1996a,b), and numerous workers since. Sheared, felsic metavolcanic rocks, oxide-facies iron formation, and felsic intrusive rocks in Duckworth Township were initially recognized as prime gold targets (Schnieders and Dutka 1985). Since 1985, more than 50 gold occurrences have been discovered in the 75 km by 6 km-wide belt (Lavigne and Scott 1994). Lavigne and Scott (1994) recognized the close spatial association between gold mineralization and a younger

"Timiskaming"-type assemblage which unconformably ($\pm$ fault contact) overlies and/or intrudes the Keewatin greenstone belt. The "Timiskaming"-type assemblage contains alkalic metavolcanic and intrusive rocks and metasedimentary rocks (Shegelski 1980; Williams *et al.* 1991 and references therein).

Schnieders *et al.* (1998) described exploration criteria for the Matawin gold belt, including important lithologies, structural components, gold mineralization styles and alteration and associated minerals. Prospectors and explorationists working in the Matawin and Shebandowan belts should consider the following exploration criteria:

Important lithologies for gold mineralization include:

- Timiskaming-aged rocks (~2680-2695 Ma), including metasedimentary rocks (arkose, wacke, conglomerate, oxide-facies iron formation); alkalic metavolcanic rocks (tuff, breccia); and intrusive rocks (syenite, lamprophyre, quartz porphyry and feldspar porphyry, granodiorite and diorite);
- Keewatin metavolcanic and intrusive rocks (felsic to mafic), and Keewatin metasedimentary rocks and iron formation.

Important structural components include:

- Large-scale structures, faults, and fault-bounded basins;
- Subsidiary structures, sub-basins, flexures and fault intersections, and related, structurally controlled, intrusions (syenite, lamprophyre, granodiorite, diorite);
- Conjugate and extensional structures;
- 040° to 060°, and 100° to 120°-trending structures; and flat sets of quartz veins, sheeted veins and stockworks.

Gold mineralization is associated with:

- quartz veins, sheeted veins, *en échelon* veins, stockwork zones and vein breccias;
- stocks, dikes and sills of felsic to mafic composition, commonly of alkalic affinity; and structurally controlled, hydrothermal breccia zones;
- quartz-veined, sulphidized zones in oxide iron formation;
- silica-flooded, hydrothermally altered zones; and
- iron carbonate- and pyrite-rich (commonly disseminated) zones typically associated with structures, shear zones and permeable zones.

Associated alteration and accessory minerals include:

- Iron carbonate, silica, potassium feldspar, sericite, hematite, chlorite and calcite; and
- Pyrite, arsenopyrite, tourmaline and green mica.

The Matawin gold belt and its "Timiskaming"-style host rocks have been compared to the Timmins and Kirkland Lake gold camps (Campbell 1996; Lavigne and Scott 1994). A tour of the Kirkland Lake camp by the senior author in 1998 also prompted comparisons to the Matawin belt and exploration considerations based on the following similarities:

- Gold deposits are related to major, regional structures (*a.k.a.* "breaks"), splay faults, flexures and cross-structures; 070° to 110°-trending structures and, sigmoidal patterns are important;
- Gold can be associated with any rock type (except those that post-date the mineralization events); favourable rocks are generally those that are more competent;
- There are abundant, carbonatized komatiites;
- There is a strong, spatial association between syenite and lamprophyre intrusions and auriferous zones.

Exploration in the Shabaqua Corners -- Dawson Road Lots area (e.g. the Gold Cache, Dawson Road Lots, Bylund, Matawin, Goldie and Schultz occurrences) should concentrate on the unconformable, locally fault-bounded contact between the Timiskaming rocks and the older, Keewatin metavolcanic rocks to the south. Ultramafic intrusive and extrusive rocks should be thoroughly explored and diamond-drilled. Deep-penetrating, induced polarization surveys should be considered to target auriferous, disseminated sulphide zones. Carbonatized, sulphidized and green mica-bearing rocks should be targeted. Numerous splay structures strike 040° to 060° and host gold-mineralized rocks. The 110°-trending, Timiskaming-Keewatin unconformity/fault zone is also considered a key exploration target.

The Tower syenite and its intrusive margins should be thoroughly prospected and explored. The Tower syenite is a multi-phase intrusion (hornblende quartz monzonite, augite-hornblende-biotite monzodiorite and diorite) which appears to occur at an intersection of major structures (Carter 1992). Major structures and splay structures are also considered good exploration targets for gold. Exploration programs should consider not only these competent, intrusive rocks, but also the contact of these intrusive rocks, with highly deformed, metavolcanic and metasedimentary country rocks.

In the Gold Creek West area, numerous granodiorite, syenite and lamprophyre dikes intrude Timiskaming metasedimentary and metavolcanic rocks. Intrusive rocks are key exploration targets, and display evidence of brittle fracturing, faulting and quartz veining. North-south compression produced extensional fractures filled by north- and northeast-striking, gold bearing quartz veins. Post-mineralization faulting occurred and produced NW and NE-striking conjugate faults (unpublished map, INCO Limited, Resident Geologist's Files, Thunder Bay South District, Thunder Bay).

Diamond Potential of Heterolithic Breccias and Lamprophyre Dykes

Recent diamond discoveries in the Michipicoten greenstone belt near Wawa have focused interest in large part on Archean mica- and actinolite-rich, heterolithic breccias and associated lamprophyre dykes (Atkinson *et al.* 2002). Recent observations by Stott *et al.* (2002) suggested some timing and lithologic relationships for these diamond-bearing rocks and have generated an exploration model for other prospective areas in the Superior Province.

Williams (2002) stated that the late Archean production of calc-alkaline lamprophyre dykes, heterolithic intrusive breccias and pyroclastic rocks was associated with transitory periods of extension during the final stages of Superior Province cratonization. Diamond-bearing lamprophyre may be distinguished from barren varieties by the presence of rounded to sub-angular, ultramafic xenoliths. Barren rocks typically occur as dykes while the diamondiferous counterparts occur in crater, diatreme and hypabyssal facies (*ibid*). Whole rock geochemistry analyzed by Williams (2002) indicates that the lamprophyres were generated at depths less than 80 km, outside the diamond stability field. It was therefore suggested that the diamonds may have formed metastably under conditions of anisotropic strain or from ultra-high pressure metamorphism of crustal or mantle rocks within their stability field (*ibid*).

Stott *et al.* (2002) have suggested that the diamondiferous rocks are related to a late-orogenic suite of intrusions that were emplaced at approximately 2673 Ma, during Kenoran orogenesis. Similar, late-orogenic, mantle-derived intrusions are widespread across the Superior Province, especially near subprovince boundaries and major crustal faults. Generally intruded after 2690 Ma, these plutons reflect a widely observed change toward more alkalic compositions during and after the Kenoran orogeny (*ibid*). Consequently, any heterolithic (diatreme?) breccias associated with these alkalic and related, sanukitoid intrusions (Stern and Hanson 1991; Stern *et al.* 1989; Henry *et al.* 1998) should be considered prospective.

Sanukitoids, as characterized by Stern *et al.* (1989), occur within syn- to post-tectonic intrusive complexes and within greenstone belts. They share the following geochemical characteristics:

SiO ₂ (wt.%)	MgO (wt.%)	Mg #	Ni and Cr (ppm)	Na ₂ O + K ₂ O (wt. %)	Sr and Ba (ppm)	REE patterns
55 to 60	> 6	> 0.60	> 100	6	600 to 1800	LREE-enriched; no Eu anomalies

REE = Rare earth elements; LREE = light rare earth elements.

Examples of prospective intrusions from the Thunder Bay South District include:

Subprovince	Late- to post-tectonic, LILE-rich intrusion(s) ¹	Age (Ma)
Wabigoon	Roaring River ^S	2623 ± 19 ²
	Pakashkan Lake	2600-2699 ³
	Norway Lake	2600-2699 ³
	Eye-Dashwa Lakes ^S	2665 ³
Quetico	Barnum Lake	2670 ⁶
	Penassen Lakes	2670 ⁶
	Blalock ^S	2688 ± 4
	Elbow Lake	
Wawa	Poohbah Lake	
	Burchell Lake ^S	2684 ± 6/-3 ⁵
	Moss Lake	
	Greenwater Lake ^S	
	Sleigh Lake	
	Perching Gull Lake ^S	2681 ± 2 ⁴ ; 2680 ± 2 ⁴
	Kekekuab Lake	2683 ± 2 ⁴
	Icarus Lake ^S	2684 ± 1 ⁴
	Saganaga Lake	2689 ± 1 ⁴

¹Stern *et al.* (1989); ²Stern and Hanson (1991); ³Stone *et al.* (2002); ⁴Corfu and Stott (1998); ⁵Corfu and Stott (1986); ⁶Henry *et al.* (1998)

^S denotes sanukitoid affinity

LILE = large ion lithophile elements

OGS ACTIVITIES AND RESEARCH BY OTHERS

- 1) Denver Stone, Precambrian Geoscience Section, OGS, carried out mapping in the south-central Wabigoon subprovince, near Upsala (Stone 2002). This work was an extension of previous mapping projects in the Ignace-Atikokan area that studied the origin and relationships between Mesoarchean and Neoarchean rocks, as well as regional controls on mineralization. The new mapping has shown that the eastern Lumbly Lake belt is significantly larger than previously known and has provided data for the interpretation of assemblages, major structural features and local gold exploration targets. Outside the greenstone belts, ultramafic stocks with potential for platinum group element mineralization (Weaver Lake and Hay Lake) and peraluminous granite with rare metal mineralization potential (Trewartha Lake) were also identified (*ibid*).
- 2) Tom Hart, Precambrian Geoscience Section, OGS, began a reconnaissance geochemical sampling program of mafic and ultramafic intrusions in the southern portion of the Nipigon basin, south of Lake Nipigon (Hart 2002b). The project's objective is to provide a better understanding of the igneous petrogenesis of the intrusive rocks, the relationship between the diabase sills and the ultramafic intrusions, and the intrusive relationships with the Quetico Subprovince and Mesoproterozoic Sibley Group country rocks. Initial examinations of the geochemistry data suggest that the Seagull and Hele peridotite and olivine gabbro samples are similar to the olivine- and augite-phyric basalts of the Lower Suite of the Osler Group (Lightfoot *et al.* 1991). They are also similar to the peridotite and olivine gabbro of the Kitto intrusion (Hart *et al.* 2002a). The Nipigon diabase sills are similar to the basalts of the Upper Suite of the Osler Group, and may have formed from the same magma feeder system (Sutcliffe 1987; Lightfoot *et al.* 1991).
- 3) Keiko Hattori and Eion Cameron (University of Ottawa) received funding under the Ontario Mineral Exploration Technologies (OMET) program to study the geochemical detection of buried and disseminated palladium mineralization in northwestern Ontario. Field work in 2002 involved orientation surveys in the Lac des Iles and Buck Lake areas.

- 4) The Lake Nipigon Geoscience Initiative (LNGI) was created in 2002 (Ontario Ministry of Northern Development and Mines, News Release, March 12, 2002). The LNGI is a \$7.0 million project aimed at attracting mineral investment to the area of Lake Nipigon. The Ontario Prospectors Association's portion of the project is funded through an agreement with the Northern Ontario Heritage Fund. The Ontario Prospectors Association is partnering with the Ontario Geological Survey, private sector partners, Lakehead University and communities in the Lake Nipigon area. The project will develop a comprehensive geoscience database that will assist mineral explorers in their search for copper, nickel, platinum group metals and copper-gold-rich mineral deposits (Ontario Prospectors Association, News Release, August 22, 2002). The Initiative will involve community and industry consultations to help define the parameters of the project. A thorough compilation of previous exploration and geoscience data will provide a baseline for the project and identify potential gaps in the geoscience database. The Ontario Geological Survey will help acquire and will publish the results of the geoscience studies as maps, reports, and digital data sets. The information will then be available over the Internet through the Ministry of Northern Development and Mines' ERMES and CLAIMap systems. This valuable information will be used to globally market the resource potential and investment appeal of the Lake Nipigon region (*ibid*).
- 5) Faculty and students at Lakehead University, Thunder Bay, have recently been, or are currently involved in a number of research projects in the Thunder Bay District:

HBS Sc Theses:

Dunford, A.J. Geochemical changes during Archean weathering of basalt (in progress).

Hallé, J.R. 2002. Paleomagnetic study of the Plateau and Slawson Intrusions of the Quetico Subprovince, Northwestern Ontario.

Heerema, D.D. 2002. A fluid inclusion study on the pegmatitic phase of the Lac des Iles Complex applied to the role of hydrothermal activity in Roby Zone mineralization.

Kelso, I.S. 2002. Geology and fluid inclusion studies of the Thunder Bay Agate Mine.

Lemetty, T.J. 2002. Paleomagnetic and magnetic fabrics of Late Archean lamprophyres, Shebandowan, northwestern Ontario.

Metsaranta, R.T. Geochemistry of the Mesoarchean basalts in the Woman River area (in progress).

Richardson, A.J. Provenance of the Pass Lake Formation, Sibley Group (in progress).

MSc Theses:

Heggie, G. Geochemistry and mineralization of the Seagull Intrusion (in progress).

Johnson, J.R. Geochemistry and mineralization of the Fort Hope Greenstone Belt (in progress).

Potter, E. Mineralogy of the Deadhorse Creek diatremes (in progress).

Rogala, B. Stratigraphy of the Sibley Group (in progress).

Publications:

Fralick, P.W., Davis, D.W. and Kissin, S.A. 2002. The age of the Gunflint Formation, Ontario, Canada: Single zircon U-Pb age determination from reworked volcanic ash: Canadian Journal of Earth Science, v. 39, 1085-1091.

Hollings, P. 2002. Archean Nb-enriched basalts in the northern Superior Province. Lithos, v. 64, 1-14.

A complete listing of publications received in the Thunder Bay South District office in 2002 is included in Table 5. Properties not currently being mined in the district are listed in Table 6.

Table 5. Publications received by the Thunder Bay South Resident Geologist's Office in 2002.

Title	Author(s)	Type and Year of Publication
The Hemlo gold deposit, Ontario, Canada: Principal deposit characteristics and constraints on mineralization	T.L. Muir	Ore Geology Reviews, v.21, (2002), p.1-66
Electron Microprobe and Bulk Analyses of Fertile Peraluminous Granites and Related Rare-element Pegmatites, Superior Province, Northwest and Northeast Ontario: Operation Treasure Hunt	A.G. Tindle, J.B. Selway and F.W. Breaks	Miscellaneous Release—Data 111 (Ontario Geological Survey 2002)
Geological and Lithochemical Data from Mafic-Ultramafic Bodies in Ontario as a Guide to Exploration for Platinum Group Element (PGE) Deposits: Operation Treasure Hunt	C. Vaillancourt, R.A. Sproule, C.A. MacDonald and P.A. Takats	Miscellaneous Release—Data 115 (Ontario Geological Survey 2002)
Geology and fluid inclusion studies of the Thunder Bay Agate Mine, northwestern Ontario	I. Kelso and S. Kissin	Abstract, 48 th Institute on Lake Superior Geology, Kenora (2002)
Geology and Tectonostratigraphic Assemblages, Eastern Wabigoon Subprovince, Ontario	G.M. Stott, D.W. Davis, J.R. Parker, K.J. Straub and K.Y. Tomlinson	Map P.3449 (Ontario Geological Survey 2002) Geological Survey of Canada Open File 4285, scale 1:250 000
Geology and Tectonostratigraphic Assemblages, North-Central Wabigoon Subprovince, Ontario	J.A. Percival, J.B. Whalen, K.Y. Tomlinson, V. McNicoll and G.M. Stott	Map P.3447 (Ontario Geological Survey 2002) Geological Survey of Canada Open File 4270, scale 1:250 000
Geology and Tectonostratigraphic Assemblages, South-Central Wabigoon Subprovince, Ontario	D. Stone, K.Y. Tomlinson, D.W. Davis, P. Fralick, J. Hallé, J.A. Percival and P. Pufahl	Map P.3448 (Ontario Geological Survey 2002) Geological Survey of Canada Open File 4284, scale 1:250 000
Geology and Tectonostratigraphic Assemblages, Western Wabigoon Subprovince, Ontario	M. Sanborn-Barrie, T. Skulski, J.A. Percival, J.B. Whalen, J. Brown and V. McNicoll	Map P.3446 (Ontario Geological Survey 2002) Geological Survey of Canada Open File 4255, scale 1:250 000
Geology of North American Palladium Ltd.'s Roby Zone deposit, Lac des Îles	M.J. Lavigne and M.J. Michaud	Exploration and Mining Geology, v.10, nos. 1 & 2
Geology of the palladium-rich Legris Lake mafic-ultramafic complex, western Wabigoon subprovince, northwestern Ontario	N.T. Pettigrew and K.H. Hattori	Exploration and Mining Geology, v.10, nos. 1 & 2
Geology of the Two Duck Lake intrusion and the Marathon Cu-PGE deposit, Coldwell Complex, northern Ontario	R. Dahl, D.H. Watkinson and R.P. Taylor	Exploration and Mining Geology, v.10, nos. 1 & 2
Internal structures within crustal structural slabs, Quetico-Wawa subprovince junction, Quetico Provincial Park, Ontario	H. Woodard	Abstract, 48 th Institute on Lake Superior Geology, Kenora (2002)

Title	Author(s)	Type and Year of Publication
Kimberlite and Base Metal Exploration Targets, Derived from Overburden Heavy Mineral Data, Schreiber Area, Northwestern Ontario	T.F. Morris, S.A. Pitre and T.M. Larose	Open File Report 6074 (Ontario Geological Survey 2002)
Lac des Iles–Black Sturgeon River Area Lake Sediment Survey: Operation Treasure Hunt	R.D. Dyer and D.F. Russell	Open File Report 6096 (Ontario Geological Survey 2002)
Magmatic Ni-Cu ± PGE Occurrences and Mafic-Ultramafic Bodies in Ontario	L. Hulbert and C. Vaillancourt	Miscellaneous Release—Data 100 (Ontario Geological Survey 2002)
Mesoarchean base metal systems in the Atikokan area, northwestern Ontario	R. Bernatchez	Abstract, 48 th Institute on Lake Superior Geology, Kenora (2002)
Mesoarchean evolution of Western Superior Province: Evidence from metasedimentary sequences near Atikokan	P. Fralick and D. King	Abstract, 48 th Institute on Lake Superior Geology, Kenora (2002)
New information from the Sibley Group	B. Rogala, P. Fralick and G. Borradaile	Abstract, 48 th Institute on Lake Superior Geology, Kenora (2002)
PGE occurrences in mafic intrusions around western Lake Superior, USA and Canada	J. Miller, M. Smyk, M. Severson, M. Lavigne and R. Middleton	9 th International Platinum Symposium, Field Trip Guidebook (2002)
Precambrian Geology, Entwine Lake Intrusion	J. Arnold	Map P.3516, scale 1:20 000 (Ontario Geological Survey 2002)
Precambrian Geology, Firesteel River Area;	D. Stone, J. Hallé and R. Metsaranta	Map P.3519, scale 1:50 000 (Ontario Geological Survey 2002)
Precambrian Geology, Pakashkan Lake Area	D. Stone, J. Hallé, R. Metsaranta and N. Petersen	Map P.3520, scale 1:50 000 (Ontario Geological Survey 2002)
Proterozoic Volcanic and Intrusive Whole Rock Geochemical Data Associated with the Keweenaw Midcontinent Rift, Lake Superior Area, Ontario	T.R. Hart	Miscellaneous Release—Data 114 (Ontario Geological Survey 2002)
Schreiber Sheet	F. Santaguida	Map 2665—Revised, Precambrian Geology Compilation Series, scale 1:250 000 (Ontario Geological Survey 2002)
VHMS mineralization and alteration within the Lumby Lake greenstone belt, northwestern Ontario	J. Johnson, S. Kissin and P. Hollings	Abstract, 48 th Institute on Lake Superior Geology, Kenora (2002)
Wawang Lake–English River Lake Sediment Survey, Northwestern Ontario: PGE Data and Final Results/ Interpretation of Lake Sediment Geochemistry	R.D. Dyer	Open File Report 6076 (Ontario Geological Survey 2002)
White River Sheet	F. Santaguida	Map 2666, Precambrian Geology Compilation Series, scale 1:250 000 (Ontario Geological Survey 2002)

Table 6. Mineral deposits not being mined in the Thunder Bay South District in 2002.

Abbreviations					
AF.....	Assessment Files	MLS.....	Mining Lands, Sudbury		
CMH.....	Canadian Mines Handbook	MR.....	Mining Recorder		
GR.....	Geological Report	NM.....	The Northern Miner		
MDC.....	Mineral Deposit Circular	OFR.....	Open File Report		
MDIR.....	Mineral Deposit Inventory record	PC.....	Personal Communication		

Deposit Name/ NTS	Commodity	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Anderson Lake 52A/10NE	Mo	1 346 000 T (grade not stated)	Open for staking	W.N. Ingham (16/06/59) in Prospectus, Lindsay Explorations Ltd. (19/06/59)	Inactive
Ardeen Mine 52B/10SE,SW	Au	90 650 T @ 15.3 g/T Au (uncut) [84 904 T @ 11.6 g/T Au, assays cut to 2 oz Au /t]; inferred resource of 1 082 939 T @ 14.4 g/T Au (uncut) [99] 739 T @ 11.2 g/T Au, assays cut to 2 oz Au /t]	Pele Mountain Resources Inc. (CMH 2002-2003, p.335)	The Ontario Prospector, v.1, no.3, p.35 (1998); CMH 2002-2003, p.335	Over \$2 M spent in exploration since acquisition in 1996
Atikokan Iron Mine 52B/14	Fe, Cu	12 000 000 T @ 35% Fe, 0.040% Cu	K. Bjorkman (Resident Geologist's Files)	NM (26/10/72)	Inactive
Aumacho (Brink) 42E/05SW	Li	759 475 T @ 1.65% Li ₂ O, plus 96 000 T @ 1.5% Li ₂ O	A. Hayes (Resident Geologist's Files)	GR 31, p.64 (1965)	Active; VLF-EM survey conducted in 1995
Coco-Estelle 42E/03SW	Au	53 700 t @ 10.7 g/t	J. Bond <i>et al.</i> (Resident Geologist's Files)	AF	Inactive; last optioned to Battle Mountain Canada Ltd. 1996-97
Coldstream 52B/10SE	Au	7.6 Mt @ 2 g/t Au	Alto Ventures Ltd. (News Release, October 01, 2002)	Alto Ventures Ltd. (News Release, October 01, 2002)	Drilled by Noranda and Freewest 1990/1991; acquired from The Other Mining Company (U.S.) Inc. in 2002
Conway 52H/08NE	Li	1.83MT @ 0.96% Li ₂ O to 300 m	E.S. Conway (Resident Geologist's Files)	GR 31, p.68 (1965)	inactive

Deposit Name/ NTS	Commodity	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Coubran Lake 42D/16NW,SW	Cu, Fe, Ti, P	60 MT @ 0.2% Cu, 27% Fe, 5% Ti, 5% P; plus 32 MT @ 0.3% Cu, 23% Fe, 0.02% Ni, 2.48% Ti, 0.36% P	Newmont Mining Corporation of Canada Limited (Newmont Capital) (CMH 2002-2003, p.170)	AF (F.N. 2.14737; 1991)	87 leases and additional claims acquired from acquisition of Redstone Resources Inc and Franco- Nevada; optioned to Aurogin Resources Ltd.
Dead Horse Creek North 42D/15SE	Pb, Zn, Ag	14 000 T @ 1.45% Pb, 7.28% Zn, 8.27 opt Ag	G. and W. Michano (2 of 8 original patented claims); remainder open for staking (Resident Geologist's Files)	Resident Geologist's Files	Inactive
Dead Horse Creek South 42D/15SE	Pb, Zn, Ag	35 000 T and 36 000 T (Zones 1 and 2) @ 19.87% Pb, 9.08% Zn, 27.65 opt Ag	J. McCabe (Resident Geologist's Files)	(Resident Geologist's Files)	Inactive
Dorion Mine 52A/15	Pb, Zn	Maximum of 35 000 T @ 10% Pb	K. Haskell (Resident Geologist's Files)	Prospectus, Andowan Mines Ltd. (30/03/57)	Restaked by current holder in 2002
Elizabeth Mine 52B/13SE	Au	250 000 tons @ 4.57 g/t Au	R. Moffatt (Resident Geologist's Files)	CMH, 1998-99, p.309	Inactive
Geordie Lake	Cu, Ag, Pd	Indicated 24.4 Mt @ 0.33% Cu, 0.54 g/t Pd, 2.52 g/t Ag	L.F.H. Ventures Ltd. (CMH 2002- 2003, p.247)	CMH 2002-2003, p.247	Drilling continuing in 2003
Great Lakes Nickel 52A/4SE	Cu, Ni, PGE	45.6 MT @ 0.344% Cu, 0.183% Ni; Pt & Pd values	Great Lakes Nickel Limited (CMH 2002-2003, p.197)	CMH 2002-2003, p.197	1970's bulk sample and feasibility study
Hammond Reef 52B/14NW	Au	85 mt @ 0.93 g/t Au (= 2.56 million oz Au)	Kinross Gold Corporation (CMH 2002-2003, p.336)	News release, Pentland Firth Ventures Ltd., 1997	1997: drilling, channel sampling and inventory calculation
Hemlo (Interlake) 42C/12NW	Au	10.8 M tons @ 0.216 opt Au (= 2 328 000 oz Au)	Newmont Mining Corporation of Canada Limited (Newmont Capital) (CMH 2002-2003, p.170)	First-Quarter Report, Franco- Nevada Mining Corporation Limited, 1999	Advanced exploration drifting and underground diamond drilling 1998-1999
Jack Lake 52B/14SW	Au	Possible: 75 000 T @ 0.35 opt Au and 3000 T @ 0.30 opt Au ¹ ; or 100 000 T @ 0.45 opt ²	M. Wicheruk (Resident Geologist's Files)	¹ OFR 5332, p.J-7 (1981) ² Annual Report, Asamera Inc. (1981)	Inactive

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Deposit Name/ NTS	Commodity	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Jean Lake 42E/05NW	Li	1.689 MT @ 1.30% Li ₂ O	Golden Nugget Exploration Inc. (CMH 2002-2003, p.190; Resident Geologist's Files)	Jean Lake Lithium Mines Ltd., Annual Report (1957)	Inactive
Lac La Croix 52B/05SW	Li	1.525 MT @ 1.27% Li ₂ O	Within Quetico Provincial Park	AF	Mining Lease of Occupation expired in 1970
M.N.W. 52H/04NE	Li	40 000 T "high-grade Li"	Golden Nugget Exploration Inc. (CMH 2002-2003, p.190; Resident Geologist's Files)	Geological Survey of Canada, Economic Geology Report 21, p.61 (1965)	Option to earn 70% interest granted to Platinova A/S in 2001 (CMH 2001- 2002, p.296)
Marathon prospect 42D/16SW	Cu, Ni, PGE	21 261 000 t measured and indicated resources grading 1.32 g/t Pd, 0.34 g/t Pt, 0.12 g/t Au, 0.40% Cu	Polymet Mining Corp. (CMH 2002- 2003, p.344); currently optioned to Geomaque Explorations Ltd.	Press Release, October 16, 2001, Geomaque Explorations Ltd.	Plans to maintain leases in good standing; feasibility study conducted in 1989; exploration resumed in 2000
McVittie 52H/08NE	Li	261 000 T @ 1.03% Li ₂ O	Golden Nugget Exploration Inc. (CMH 2002-2003, p.190; Resident Geologist's Files)	GR 31, p.89 (1965)	Inactive
Nama Creek 52H/08NE	Li	4 292 232 tons @ avg. 1.06% Li ₂ O	Coniagas Resources Limited (CMH 2002-2003, p.109)	CMH 2002-2003, p.109	Inactive since 1957
Nicopor 42D/14NW	Ni, Cu	185 000 T @ 0.48% Ni, 0.26% Cu (0-90 m); plus 190 000 T @ 0.40% Ni, 0.12% Cu (90-180 m)	B. Fowler and M. Shuman; Optioned to Novawest Resources Inc. (CMH 2002-2003, p.317)	Zenmac Metal Mines Ltd., Annual Report (1970)	Optioned to Novawest Resources Inc.; explored in 2001
North Shores 42D/14SW	Au	Geological reserves of 2Mt @ 2.2 gpt Au (Afric Zone)	Autotrac Ltd.; currently optioned to International Taurus Resources Inc. (CMH 2002-2003, p.230)	Resident Geologist's Files	Explored in 1997 by Cyprus Canada Inc.; currently optioned to International Taurus Resources Inc.
Ontario Lithium (Jackpot) 42E/05SW	Li	1.18 MT @ 1.084% Li ₂ O	International Precious Metals Corporation (CMH 1997-98, p.250) [company address and status unknown; CMH 2000-2001, p.220]	CMH 1997-98, p.250	Drilling in 1994
Pistol Lake 52B/09NW	Au	9.6 mt @ 1.4 g/t Au or 2.9 mt @ 2.6 g/t Au	D. Parker and B. D'Silva	GR	Drilled by Detector Resources Ltd. 1994-95

Deposit Name/ NTS	Commodity	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Powell 52B/07SW	Au	250 000 T @ 0.25 opT Au	Saganaga Resources	NM, Jan. 22, 1990	Milling bulk sample on site, 1992
Prairie Lake 42E/02SE	U, Nb, REE, wollastonite	200 000 T @ 1.8 lbs/T U ₃ O ₈ , 5.0 lbs/T Nb ₂ O ₅	Nuinsco Resources Limited (CMH 2002-2003, p.319)	NM (03/05/79)	Prefeasibility study on cement/lime products completed with positive results
Sapawe Mine 52B/14SW	Au	528 614 T @ 0.31 opT Au	Sapawe Gold Mines Ltd. (Resident Geologist's Files)	Press release, March 10, 1995	Diamond drilling, 1995
Sawbill Lake 52B/14	Au	66 600 T @ 0.20 opT Au		OFR 5332, p.J-4 (1981)	
Schreiber-Pyramid 42D/14SE	Au	107 T @ 0.71 opT Au	B. Fowler (Resident Geologist's Files)	Resident Geologist's Files	Inactive; last worked in 1992
Silver Mountain 52A/04NW	Ag	60 000 T @ 5.0 opT Ag, 12% CaF ₂		NM (28/10/54)	
Silver Islet 52A/07SW	Ag	115 000 T @ 40 opT Ag in dump ¹ , plus 300 000 oz Ag in roof pillar ² ; or 1 050 000 oz Ag ³ , plus 750 000 oz Ag in pillars and stopes ⁴	Cross estate (Resident Geologist's Files)	¹ MP 71, p.44 (1976) ² MRC 10, p.74 (1968) ³ NM (18/10/79) ⁴ NM (10/02/83)	Dump material processed ca.1984 by QC Explorations Ltd.
Snodgrass Lake 52B/10SE	Au	60 mt @ 1.1 g/t Au; including measured and indicated resources of 475 000 t @ 6.2 g/t Au	Moss Lake Gold Mines Ltd. (CMH 2002-2003, p.283)	CMH 2002-2003, p.283; River Gold Mines Ltd., Annual Information Form, May 03, 2002	evaluation work and drilling in 2002; seeking JV partner
Stewart / Fire Tower 52A/12SE	Au	60 000 t @ 3.0 g/t Au	M. Stewart; optioned to Valerie Gold Resources Ltd. in 2002 (CMH 2002-2003, p.431)	GR	Currently being explored by Valerie Gold Resources Ltd.
Sunbeam 52B/14	Au	4410 T @ 0.42 opT Au	[unknown]	OFR 5332, p.J-2 (1981)	Acquired by Allegheny Mines Ltd. in 1996 (company delisted 1999)
Swamp River 52B/09SE	Au	998 000 T @ 0.12 opT Au (incl. 675 000 T @ 0.146 opT Au)	Band-Ore Resources Ltd. (CMH 2002- 2003, p.52)	CMH 2002-2003, p.52	Bulk sample, feasibility study 1975; drilling 1987, 1995

Deposit Name/ NTS	Commodity	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Vanguard 52B/09NW	Cu, Zn, Au, Ag	East Vanguard: 100 000 T @ 1.8% Cu, 3.4% Zn, 0.22 opt Ag, 0.6 to 0.19 opt Au; West Vanguard: ~200 000 T @ 1.3% Cu, 1% to 2% Zn, 0.28 opt Ag	C. Bumbu, M. Fogen and J. Martin (Resident Geologist's Files)	News release, Allegheny Mines Corporation, Nov. 4, 1997	Optioned to Canadian Golden Dragon Resources Ltd. in 2002; diamond drilling in 2002
Vegan 42E/05SW	Li	750 000 T @ 1.38% Li ₂ O	Golden Nugget Exploration Inc. (CMH 2002-2003, p.190; Resident Geologist's Files)	NM (22/03/56)	Inactive
Willecho and Willroy 42F/04NW	Cu, Zn, Ag	759 448 T @ 4.42% Zn, 0.28% Cu, 1.47 opt Ag (combined)	Noranda Inc. (<i>The Chronicle-Journal</i> 25/10/98)	Willroy Mines Ltd., Annual Report (1976)	Past producers; last optioned/worked by Noranda Mining and Exploration Inc.
Winston Lake 42D/14NW	Cu, Zn	598 000 t @ 1.0% Cu, 21.2% Zn (incl. 33% dilution)	Inmet Mining Corporation	Inmet Mining Corporation, pers. comm., 1999	Mine closed, February, 1999
Wisa Lake 52C/08NE	Li	330 000 T @ 1.15% Li ₂ O	P. Gagne (Resident Geologist's Files)	Manager's Report, Lexindin Gold Mines Ltd. (1958)	Diamond drilling, 1950's; staked in 2001 by current holder

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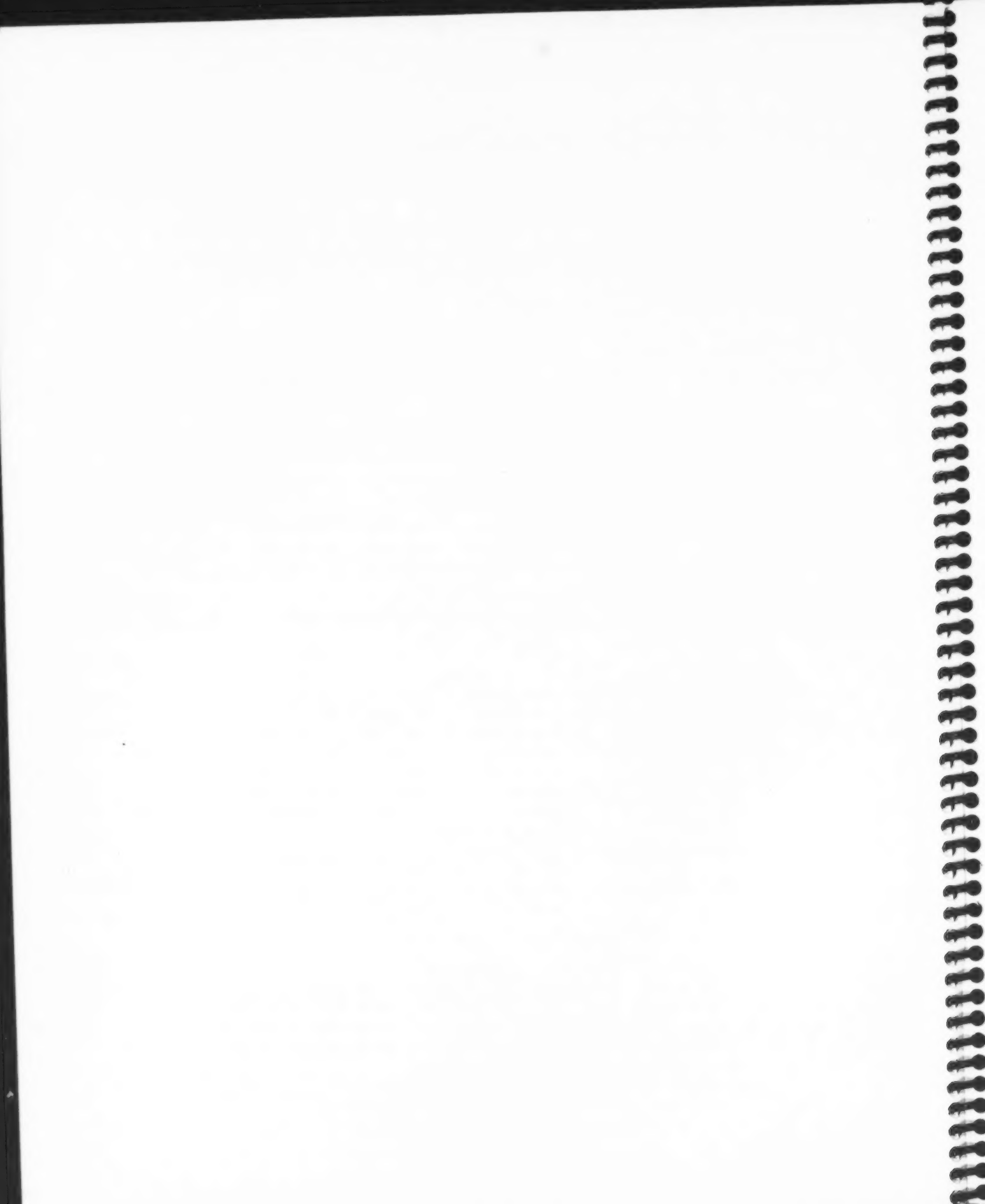
Metric Conversion Table

Conversion from SI to Imperial			Conversion from Imperial to SI		
SI Unit	Multiplied by	Gives	Imperial Unit	Multiplied by	Gives
LENGTH					
1 mm	0.039 37	inches	1 inch	25.4	mm
1 cm	0.393 70	inches	1 inch	2.54	cm
1 m	3.280 84	feet	1 foot	0.304 8	m
1 m	0.049 709	chains	1 chain	20.116 8	m
1 km	0.621 371	miles (statute)	1 mile (statute)	1.609 344	km
AREA					
1 cm ²	0.155 0	square inches	1 square inch	6.451 6	cm ²
1 m ²	10.763 9	square feet	1 square foot	0.092 903 04	m ²
1 km ²	0.386 10	square miles	1 square mile	2.589 988	km ²
1 ha	2.471 054	acres	1 acre	0.404 685 6	ha
VOLUME					
1 cm ³	0.061 023	cubic inches	1 cubic inch	16.387 064	cm ³
1 m ³	35.314 7	cubic feet	1 cubic foot	0.028 316 85	m ³
1 m ³	1.307 951	cubic yards	1 cubic yard	0.764 554 86	m ³
CAPACITY					
1 L	1.759 755	pints	1 pint	0.568 261	L
1 L	0.879 877	quarts	1 quart	1.136 522	L
1 L	0.219 969	gallons	1 gallon	4.546 090	L
MASS					
1 g	0.035 273 962	ounces (avdp)	1 ounce (avdp)	28.349 523	g
1 g	0.032 150 747	ounces (troy)	1 ounce (troy)	31.103 476 8	g
1 kg	2.204 622 6	pounds (avdp)	1 pound (avdp)	0.453 592 37	kg
1 kg	0.001 102 3	tons (short)	1 ton (short)	907.184 74	kg
1 t	1.102 311 3	tons (short)	1 ton (short)	0.907 184 74	t
1 kg	0.000 984 21	tons (long)	1 ton (long)	1016.046 908 8	kg
1 t	0.984 206 5	tons (long)	1 ton (long)	1.016 046 90	t
CONCENTRATION					
1 g/t	0.029 166 6	ounce (troy)/ ton (short)	1 ounce (troy)/ ton (short)	34.285 714 2	g/t
1 g/t	0.583 333 33	pennyweights/ ton (short)	1 pennyweight/ ton (short)	1.714 285 7	g/t

OTHER USEFUL CONVERSION FACTORS

	Multiplied by	
1 ounce (troy) per ton (short)	31.103 477	grams per ton (short)
1 gram per ton (short)	0.032 151	ounces (troy) per ton (short)
1 ounce (troy) per ton (short)	20.0	pennyweights per ton (short)
1 pennyweight per ton (short)	0.05	ounces (troy) per ton (short)

Note: Conversion factors which are in bold type are exact. The conversion factors have been taken from or have been derived from factors given in the Metric Practice Guide for the Canadian Mining and Metallurgical Industries, published by the Mining Association of Canada in co-operation with the Coal Association of Canada.





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